The Active Living and Environment Symposium
Linking Transport, Health and Sustainability

University of Otago | Dunedin | New Zealand | 13-15 February 2019

Symposium Proceedings

Editors:
Sandra Mandic, PhD and Kirsten Coppell, MPH, FNZCPHM

www.otago.ac.nz/active-living-2019

Sponsors:
Transport Research Network, University of Otago
Continuing Education Fund, University of Otago
School of Physical Education, Sport and Exercise Sciences, University of Otago

Hosted by:
## Table of Contents

Welcome ........................................................................................................................................... 4  
Symposium Dates, Location and Venue ......................................................................................... 5  
Symposium Website ....................................................................................................................... 5  
Sponsors .......................................................................................................................................... 5  
Questions? Let us know… ............................................................................................................... 5  
Invited Speakers ............................................................................................................................ 6  
Symposium Programme .................................................................................................................. 12  
Public Forum ................................................................................................................................... 18  
Symposium Social Events ............................................................................................................. 19  
Additional Social Events ............................................................................................................... 20  
Day 1: Wednesday, 13 February 2019 ......................................................................................... 21  
  Keynote Lecture ......................................................................................................................... 21  
  Plenary Session #1 ...................................................................................................................... 22  
  Abstracts: Policy and Workplaces ............................................................................................... 25  
  Abstracts: Walking and Cycling ................................................................................................. 29  
  Plenary Session #2 ...................................................................................................................... 33  
Day 2: Thursday, 14 February 2019 ............................................................................................... 34  
  Plenary Session #3 ...................................................................................................................... 34  
  Abstracts: Encouraging Active Transport .................................................................................. 37  
  Abstracts: Facilitating Active Living ........................................................................................ 41  
  Plenary Session #4 ...................................................................................................................... 45  
  Debate “Future of Transport” ..................................................................................................... 48  
  Plenary Session #5 ...................................................................................................................... 49  
Day 3: Friday, 15 February 2019 ..................................................................................................... 50  
  Plenary Session #6 ...................................................................................................................... 50  
  Abstracts: Urban Environment .................................................................................................. 53  
  Abstracts: Cycling and Sustainability ...................................................................................... 57  
  Plenary Session #7 ...................................................................................................................... 61  
Discussion of Key Policy Recommendations from the TALES 2019 Symposium .................. 62  
Wrap-up Reflections on TALES Symposium 2019 and General Discussions ...................... 63
Welcome

Dear Colleagues,

Welcome to The Active Living and Environment Symposium (TALES): Linking Transport, Health and Sustainability held 13-15 February 2019 in Dunedin, New Zealand. This symposium has been designed to facilitate and grow an international, multidisciplinary and multi-sector dialogue related to Active Living and Environment.

Symposium themes include Health, Transportation, Environment and Sustainability.

This multidisciplinary symposium is bringing together international and national experts from multiple sectors including academia, government, public health, urban design, transportation and environment.

As organisers, we anticipate that during this symposium you will:

- Engage with and learn from international and national experts
- Exchange ideas and participate in an interdisciplinary and multi-sector dialogue
- Showcase your research findings, programs, interventions, case studies, policy impacts and advocacy initiatives
- Extend your networks
- Plan new interdisciplinary initiatives, working towards a healthier and more sustainable future
- Explore what the University of Otago, Dunedin and New Zealand have to offer.

Programme highlights include:

- 3 full action-packed days
- 13 invited speakers (3 from overseas, and 10 from New Zealand)
- 8 abstract sessions with 29 research-focused and practice/policy presentations
- Social and networking activities before, during and after the symposium

Working together, we can take new steps towards a healthier and more sustainable future.

Thank you for joining us. We hope you enjoy the symposium, are inspired, make new friends and take many new ideas to extend your current work.

Kind regards,

TALES 2019 Symposium Organising Committee

Associate Professor Sandra Mandic (Chair)
School of Physical Education, Sport and Exercise Sciences
University of Otago

Associate Professor Kirsten Coppell
Dunedin School of Medicine
University of Otago
Symposium Dates, Location and Venue

Dates and Location
13-15 February 2019
University of Otago
Dunedin | New Zealand

Symposium Venue
The conference will be held in the Burns (Arts) Building Lecture Theatre:
75 Albany Street, Dunedin (see map)
Catering for lunches, morning and afternoon teas will be held nearby (in the ISB Link).

Symposium Website
For detailed information, please refer to the symposium website:
www.otago.ac.nz/active-living-2019

Sponsors
Transport Research Network, University of Otago
University of Otago, 150th Anniversary Fund

We also acknowledge Kimberley King, project coordinator, Jessica Calverley and Brittany White who helped with the organization of this symposium.

Questions? Let us know...

Active Living Laboratory
Phone: +64 3 479 9112 | Email: ale.symposium@otago.ac.nz
OR come and see us at the registration desk outside BURNS 1 Lecture Theatre.

School of Physical Education, Sport and Exercise Sciences, University of Otago
55 Union Street West, Office 211/212 | PO Box 56
Dunedin 9054, NEW ZEALAND
The goal of this symposium is to facilitate and grow an international, multidisciplinary and multi-sector dialogue related to Active Living and Environment. There will be opportunities to learn from and exchange ideas with a range of international and New Zealand speakers, and participants across the fields of health, transport, environment and sustainability.

**International speakers**

**Professor Jennifer Mindell**, UCL (University College London), London, United Kingdom  
**Professor John C. Spence**, University of Alberta, Edmonton, Canada  
**Dr Enrique García Bengoechea**, University of Limerick, Limerick, Ireland

**New Zealand speakers**

**Ms Celia Wade-Brown QSO**, Living Streets Aotearoa  
**Mr Martin Dutton**, Ministry of Health  
**Professor Simon Kingham**, Ministry of Transport  
**Ms Claire Pascoe**, New Zealand Transport Agency  
**Mr Andrew Jackson**, Consulting Jackson Ltd  
**Professor Erica Hinckson**, Auckland University of Technology, Auckland  
**Associate Professor Melody Smith**, University of Auckland, Auckland  
**Associate Professor Ben Wooliscroft**, University of Otago, Dunedin  
**Associate Professor Sandra Mandic**, University of Otago, Dunedin  
**Dr Christina Ergler**, University of Otago, Dunedin

Details about invited speakers are provided on the following pages.
Professor Jennifer Mindell
UCL (University College London), London, United Kingdom

Community Severance – the Barrier Effects of Busy Roads

Dr Jennifer Mindell is Professor of Public Health at UCL (University College London). A public health doctor based in UCL’s Research Department of Epidemiology & Public Health, she conducts research on community severance (the barrier effects of busy roads) and road casualty rates, and leads the UCL Health Survey for England team. She is Editor-in-Chief of the award-winning Journal of Transport and Health. She is on the Executive of both the Transport and Health Study Group (convenor of its Latin American network) and the International Professional Association on Transport and Health and chairs the UK Faculty of Public Health’s Health Improvement Committee.

Dr. John C. Spence, Professor and Vice Dean
Faculty of Kinesiology, Sport, and Recreation, University of Alberta, Edmonton, Canada

Potential Impact of Autonomous Vehicles on Movement Behaviour: Winter is Coming!

Professor Spence has expertise in theories of health behaviour, research methods, and population health. His research focuses on the benefits and determinants of physical activity and how physical inactivity and sedentary behaviour are related to obesity. Recent work has examined the role of policy initiatives for promoting physical activity and reducing sedentary behaviour in Canada. For instance, he has led evaluations on the effectiveness of tax credits and a micro-grants program to support children’s access to physical activity and sport.

Dr Enrique García Bengoechea
Dean’s Research Fellow in Physical Activity and Health, Faculty of Education and Health Sciences, University of Limerick, Limerick, Ireland

The Promise of Participatory Research in Scaling-Up Physical Activity Interventions

Enrique’s main area of research is community-based physical activity and health promotion. Previously, he has held research and academic appointments at the Alberta Centre for Active Living, McGill University and the University of Western Sydney. Enrique is a member of the research team of the Built Environment and Active Transport to School (BEATS) study, based at the University of Otago. He is also an Adjunct Fellow with the new Institute for Health and Sport (IHES) at Victoria University in Melbourne.
Ms Celia Wade-Brown QSO
Living Streets Aotearoa

Highlights from Walk21 Conference in Bogota, Columbia

Celia Wade-Brown has been active in local government for 20 years, with two terms as Mayor of Wellington. She founded Living Streets Aotearoa, the nationwide voice for people on foot, in 2002 and is currently their National Secretary. Celia walked the 3000 km trail in 2017 and is now a trustee of Te Araroa Trust. She is also a trustee of the international Walk21 Foundation.

Mr Martin Dutton
Senior Advisor, Wellness, Nutrition & Physical Activity Team, Ministry of Health, New Zealand

New Zealand Response to the Global Action Plan on Physical Activity

Martin has a passion for all things activity related, especially those connected with the outdoors. Having spent a decade running an outdoor activity centre in the UK as well as 7 years as the Senior Advisor Physical Activity at the Ministry of Health, Martin understands the benefits of physical activity from the perspective of a participant, educator and operational policy maker. Martin has co-authored several Ministry guidelines including ‘Guidelines on Physical Activity for Older People (aged 65 years and over)’ (2013), the ‘Eating and Activity Guidelines for NZ Adults’ (2015) and the ‘Sit Less, Move More, Sleep Well Guidelines for Under-Fives’ (2017). In 2017, Martin represented New Zealand at the World Health Organization’s Fifth Regional Workshop on Leadership and Advocacy for the Prevention and Control of Non-Communicable Diseases.

Professor Simon Kingham
Ministry of Transport, Chief Science Advisor

Turning Active Transport Research into Policy: A View from the Chief Science Advisor

In February 2018, Professor Simon Kingham became the first Chief Science Adviser for the Ministry of Transport. In this role, Simon supports the Ministry in developing and supporting an evidence-based approach to strategy and advice to ensure the Ministry uses the best scientific research in formulating policy. He spends two days a week in Wellington, and the rest of the week at the University of Canterbury where he is a Professor of Geography, Director of the GeoHealth Laboratory, and deputy-Director of the Geospatial Research Institute. His research primarily focuses on the impact of the urban environment on individual and community health and wellbeing. Much of his research uses geospatial science. His research is generally applied and carried out with end users and a strong community engagement focus.
Ms Claire Pascoe
New Zealand Transport Agency

**Changing Urban Mobility Systems: Technical Problem or Adaptive Challenge?**

Claire Pascoe is the Lead Advisor Urban Mobility at the New Zealand Transport Agency. In her current role, she provides technical expertise and leadership in relation to rebalancing the transport system, providing people with genuine options for getting around our towns and cities and making them healthier places to be. She was previously involved in developing and delivering the Urban Cycleways Programme and managing the national cycling culture change team.

Mr Andrew Jackson
Consulting Jackson Ltd, New Zealand

**Exploring the Interplay of Living and Digital Cognitive Systems in Mobility and what This Might Mean for Future Health and Environmental Outcomes**

In his consulting role, Andrew Jackson led New Zealand Transport Agency's programme to create a Future Transport Technology Roadmap and has consulted a number of public sector organisations on strategy including NZ's Treasury and Ministry of Education, and a range of multinationals. He represented Udacity in New Zealand (a Silicon Valley company providing training in leading edge programming). He was the Deputy Chief Executive of the Ministry of Transport where he was responsible for strategy and research and before that was the Deputy Secretary for Competition, Trade and Investment in the Ministry of Economic Development. Prior to coming to New Zealand he worked for the UK's Chief Scientific Adviser (Professor Sir David King) bringing together groups of world leading scientists under the Foresight banner to tackle challenging issues. Projects he led included those on Obesity, Psychoactive substances and Addiction and Intelligent Infrastructure.

Professor Erica Hinckson
Auckland University of Technology, Auckland, New Zealand

**Active Living through Citizen Science: A Bottom-Up Approach**

Professor Erica Hinckson is currently the Head of School-Sport and Recreation at Auckland University of Technology. Her research is focused on understanding the links between the environment, physical activity, sedentary behaviour and health. She is on the steering committee for the International Physical activity & Environment Network-Adolescents, IPEN study, chair of the international Council of Environment and Physical Activity and inaugural member of Citizen Science Global Research Network.
**Associate Professor Melody Smith**
The School of Nursing, University of Auckland, Auckland, New Zealand

**Neighbourhoods for Active Kids: Understanding Children’s Neighbourhood Use, Perceptions, and Preferences, and Links with Health**

Aspirations for neighbourhoods where children can be independently mobile, where people can get around safely by walking and cycling, and where social and physical well-being is prioritised and facilitated are key drivers of my research. Most of this work involves the integration of objective measurement of behaviours and outcomes (e.g., accelerometry, inclinometry, GPS, GIS), as well as person-centred methods (participatory planning, online mapping). I am fortunate to work with amazing researchers and students across a range of innovative projects that contribute to understanding the links between built and social environments and health and well-being in children and their families.

**Associate Professor Ben Wooliscroft**
University of Otago, Dunedin, New Zealand

**Moving Beyond Infrastructure: Changing the Culture (and Mode) of Our Mobility**

Assoc Prof Ben Wooliscroft is the Associate Dean Research in the Division of Commerce and a transportation and energy researcher affiliated with the Centre for Sustainability, University of Otago. His primary interest is in the place of active transportation in the move towards more efficient, healthier, more sustainable and more equitable mobility in New Zealand. He is an Associate Editor of the Journal of Macromarketing and an active macromarketing researcher, dealing with the interactions between markets and society. Other research focuses on ethical consumption (including transportation) and sustainable business models (including sustainable mobility’s place in business).

**Associate Professor Sandra Mandic**
Active Living Laboratory, School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand

**Challenges for Active Transport to School in Urban and Rural New Zealand: Insights from the BEATS Research Programme**

Multidisciplinary and multi-sector approach to physical activity and health with the links to transportation, built environment and sustainability inspire Sandy’s research. Her academic training and professional experiences span Europe, Canada, United States and New Zealand. She is the academic leader of the Active Living Laboratory, the principal investigator on the Built Environment and Active Transport to School: BEATS Study, the convener of the Transport Research Network and a Research Affiliate of the Centre of Sustainability at the University of Otago.
Dr Christina Ergler

Department of Geography, University of Otago, Dunedin, New Zealand

'Yes, it's fun, but ...': Young People Voice their Suggestions for Improvement of a Cycle Skills Training Programme

Dr. Ergler’s research interests are at the intersection of geography, sociology and public health, and centre on how physical, social and symbolic environments shape and are shaped by the way people play, live, age, fall ill and recover in particular places. She has published numerous theoretical and methodological pieces to alert stakeholders and communities to the socio-spatial, structural and experiential dimensions of people’s health and wellbeing in transforming urban environments.
### Symposium Programme

#### Day 1: Wednesday, 13 February 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 09:30</td>
<td>Registration</td>
<td>ISB Link</td>
</tr>
<tr>
<td>09:30 - 10:00</td>
<td>Morning tea</td>
<td>ISB Link</td>
</tr>
<tr>
<td>10:00 - 11:00</td>
<td>Welcome</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td>Mr Dave Cull, <em>Mayor of Dunedin</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dr Hilary Pipps, <em>Head of Sustainability, University of Otago</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Richard Barker, <em>Pro-Vice Chancellor, Division of Sciences, University of Otago</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Fiona Bull, <em>World Health Organisation (via video)</em></td>
<td></td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td>Keynote Lecture</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td>Community Severance – the Barrier Effects of Busy Roads</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Prof Jennifer Mindell, UCL, London, UK</em></td>
<td></td>
</tr>
<tr>
<td>12:00 - 13:00</td>
<td>Lunch</td>
<td>ISB Link</td>
</tr>
<tr>
<td>13:00 - 14:30</td>
<td>Plenary Session #1</td>
<td>BURNS 1</td>
</tr>
<tr>
<td>13:00 - 13:30</td>
<td>Challenges for Active Transport to School in Urban and Rural New Zealand: Insights from the BEATS Research Programme</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Assoc Prof Sandra Mandic, University of Otago, New Zealand</em></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>13:30 - 14:00</td>
<td>Neighbourhoods for Active Kids: Understanding Children's Neighbourhood Use, Perceptions, and Preferences, and Links with Health</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Assoc Prof Melody Smith, University of Auckland, New Zealand</em></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>14:00 - 14:30</td>
<td>The Promise of Participatory Research in Scaling Up Physical Activity Interventions</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Dr Enrique García Bengoechea, University of Limerick, Ireland</em></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>14:30 - 15:00</td>
<td>Afternoon tea</td>
<td>ISB Link</td>
</tr>
<tr>
<td>15:00 - 16:00</td>
<td>Abstract Session: Policy and Workplaces</td>
<td>BURNS 1</td>
</tr>
<tr>
<td>15:00 - 15:15</td>
<td>Perceived Accessibility and its Role in the Sustainable Transformation of Cities</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Anna-Lena der Vlugt, ILS Research Institute for Regional and Urban Development, Germany</em></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>15:15 - 15:30</td>
<td>Policy Instruments for an Environmentally-Sustainable Road Transport Network</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Mingyue Sheng, University of Auckland, New Zealand</em></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>15:30 - 15:45</td>
<td>'Go Well'- the Hawke's Bay DHB Travel Plan</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Louise Baker and Lisa Malde, Hawkes Bay District Health Board, New Zealand</em></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>15:45 - 16:00</td>
<td>The 9 to 5 Cycle: Encouraging Active Commuting</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Minn Brodie and Thomas McNaughton, Christchurch City Council, New Zealand</em></td>
<td>BURNS 1</td>
</tr>
</tbody>
</table>
**Day 1: Wednesday, 13 February 2019 (continued)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:00 - 16:00</td>
<td><strong>Abstract Session: Walking and Cycling</strong></td>
<td>BURNS 7</td>
</tr>
<tr>
<td>15:00 - 15:15</td>
<td>Evolving Methods in School Travel Planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>John Lieswyn, ViaStrada, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>15:15 - 15:30</td>
<td>Perceptions of Walking versus Cycling to School among Rural Adolescents in Otago, New Zealand.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Jessica Calverley, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>15:30 - 15:45</td>
<td>Adolescents’ Perceptions of the School Neighbourhood Environment in Rural Settlements, Small and Medium Urban Areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Brittany White, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>15:45 - 16:00</td>
<td>Forgotten Travelers: The Behaviour and Subjective Well-being of Skateboarders in Rural New Zealand</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Aimee Ward, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>16:00 - 16:15</td>
<td><strong>Activity Break</strong></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>16:15 - 16:45</td>
<td><strong>Plenary Session #2</strong></td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td>New Zealand Response to the Global Action Plan on Physical Activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Martin Dutton, Ministry of Health, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>17:00 - 19:00</td>
<td><strong>Opening Reception</strong></td>
<td>Staff Club</td>
</tr>
</tbody>
</table>
Day 2: Thursday, 14 February 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 10:30</td>
<td><strong>Plenary Session #3</strong></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>09:00 - 09:30</td>
<td>Exploring the Interplay of Living and Digital Cognitive Systems in Mobility and what This Might Mean for Future Health and Environment Outcomes</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Andrew Jackson, Consulting Jackson Ltd, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>09:30 - 10:00</td>
<td>Changing Urban Mobility Systems: Technical Problem or Adaptive Challenge?</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Claire Pascoe, New Zealand Transport Agency, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>10:00 - 10:30</td>
<td>Turning Active Transport Research into Policy: A View from the Chief Science Advisor</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Prof Simon Kingham, Ministry of Transport, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>10:30 - 11:00</td>
<td><strong>Morning tea</strong></td>
<td>ISB Link</td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td><strong>Abstract Session: Encouraging Active Transport</strong></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>Active and Alternative Transport Use amongst Older Drivers: Population-Based Survey</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Dr Rebecca Brookland, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:15 - 11:30</td>
<td>Older Adults Experiences of Mobility and Falling in the Outdoor Environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Dr Angela Curl, University of Canterbury, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:30 - 11:45</td>
<td>Corporate Travel Plan, Social Justice, and Health: The Case of a Lubricants Corporation in Brazil</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Dr Ricardo Oliveira, Rio De Janeiro State University, Brazil</em></td>
<td></td>
</tr>
<tr>
<td>11:45 - 12:00</td>
<td>Spatial Analysis and Geovisualisation for Active Transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Long Chen, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td><strong>Abstract Session: Facilitating Active Living</strong></td>
<td>BURNS 7</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>Teaching Water Skills for Life to Children in Open Water Environments</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Assoc Prof Chris Button, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:15 - 11:30</td>
<td>Inspiring, Empowering and Supporting Adolescents in Rural Areas to Be Agents of Change: The Catalyst Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Kimberley King, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:30 - 11:45</td>
<td>Physical Activity Maintains Sexual Activity and Reduces Insomnia Symptoms in Prostate Cancer Patients who are on Androgen Deprivation Therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Kathleen Galvin, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:45 - 12:00</td>
<td>Adolescents’ Dietary Patterns in Different Geographical Locations Across the Otago Region, New Zealand</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Assoc Prof Kirsten Coppell, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>12:00 - 13:00</td>
<td><strong>Lunch</strong></td>
<td>ISB Link</td>
</tr>
<tr>
<td>Time</td>
<td>Session/Activity</td>
<td>Location</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>13:00 - 14:30</td>
<td>Plenary Session #4</td>
<td>BURNS 1</td>
</tr>
<tr>
<td>13:00 - 13:30</td>
<td>Potential Impact of Autonomous Vehicles on Movement Behaviour: Winter is Coming!</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Prof John Spence, University of Alberta, Canada</em></td>
<td></td>
</tr>
<tr>
<td>13:30 - 14:00</td>
<td>Creating Active and Vibrant Urban Environments through Integrated Land Use and Transport Planning: Evidence from London</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Gareth Fairweather, Ministry of Transport, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>14:00 - 14:30</td>
<td>Moving Beyond Infrastructure: Changing the Culture (and Mode) of Our Mobility</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Assoc Prof Ben Wooliscroft, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>14:30 - 15:00</td>
<td>Afternoon tea</td>
<td>ISB Link</td>
</tr>
<tr>
<td>15:00 – 16:00</td>
<td>Debate: Future of Transport</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td><em>Facilitators: Andrew Jackson, Consulting Jackson Ltd and Claire Pascoe, New Zealand Transport Agency</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Panellists:</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ms Celia Wade-Brown QSO, Living Streets Aotearoa</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Jennifer Mindell, UCL (University College London) London, United Kingdom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof John Spence, University of Alberta, Canada</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prof Simon Kingham, Ministry of Transport, New Zealand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assoc Prof Ben Wooliscroft, University of Otago, New Zealand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>John Lieswyn, ViaStrada, New Zealand</td>
<td></td>
</tr>
<tr>
<td>16:00 – 16:15</td>
<td>Activity Break</td>
<td></td>
</tr>
<tr>
<td>16:15 – 16:45</td>
<td>Plenary Session #5</td>
<td>BURNS 1</td>
</tr>
<tr>
<td></td>
<td>‘Yes it’s fun but…’: Young People Voice their Suggestions for Improvement of a Cycle Skills Training Programme</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Dr Christina Ergler, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>17:00 - 18:00</td>
<td>Botanical Garden Walk</td>
<td>(Meet at BURNS 1)</td>
</tr>
<tr>
<td>19:00 - 21:00</td>
<td>Symposium Dinner</td>
<td>Staff Club</td>
</tr>
<tr>
<td>Time</td>
<td>Session</td>
<td>Room</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>09:00 - 10:30</td>
<td><strong>Plenary Session #6</strong></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>09:00 - 09:30</td>
<td>Highlights from Walk21 Conference in Bogota, Columbia</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Celia Wade-Brown QSO, Living Streets Aotearoa, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>09:30 - 10:00</td>
<td>Transport, Environment and Everything. A Queenstown Lakes District Case Study</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Alexa Forbes, Otago Polytechnic, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>10:00 - 10:30</td>
<td>Active Living through Citizen Science: A &quot;Bottom-Up&quot; Approach to Promoting Activity-Friendly Environments and Health Equity</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Prof Erica Hinckson, Auckland University of Technology, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>10:30 - 11:00</td>
<td>Morning tea</td>
<td>ISB Link</td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td><strong>Abstract Session: Urban Environment</strong></td>
<td>BURNS 1</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>Results from the Inclusive Streetscapes Project.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Prof Shanthi Ameratunga, University of Auckland, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:15 - 11:30</td>
<td>Modelling Safe Walking and Cycling Routes for Adolescents in Dunedin, New Zealand</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Mohammad Lutfur Rahman, Jahangirnagar University, Bangladesh</em></td>
<td></td>
</tr>
<tr>
<td>11:30 - 11:45</td>
<td>School Neighbourhood Built Environment and Active Transport to School in Adolescents</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Tessa Pocock, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:45 - 12:00</td>
<td>Climate Safe-Housing: Adaptation in Action</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Scott Willis, Blueskin Resilient Communities Trust, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td><strong>Abstract Session: Cycling and Sustainability</strong></td>
<td>BURNS 7</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>The E-Bike Revolution - Experiences of a Large Cycle Skills Training Provider in Facing an E-Bike Boom.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Matt Shipman, Greater Wellington Regional Council, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:15 - 11:30</td>
<td>The Experiences of Electric Bike Users within the Dunedin Community</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Matthew Jenkins, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:30 - 11:45</td>
<td>Bike With Us</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Sue Smith and Lyndal Johansson, Sport Hawke’s Bay, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>11:45 - 12:00</td>
<td>Learning Journeys in the Local Environment using Non-Motorised Forms of Transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Shannon McNatty, University of Otago, New Zealand</em></td>
<td></td>
</tr>
<tr>
<td>12:00 - 13:00</td>
<td>Lunch</td>
<td>ISB Link</td>
</tr>
</tbody>
</table>
### Day 3: Friday, 15 February 2019 (continued)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00 - 14:30</td>
<td><strong>Plenary Session #7</strong></td>
</tr>
<tr>
<td>13:00 - 13:30</td>
<td>The Transition is Tough: Moving Towards a Sustainable 21st Century City</td>
</tr>
<tr>
<td></td>
<td><em>Sara Templeton, Christchurch City Council, New Zealand</em></td>
</tr>
<tr>
<td>13:30 - 14:30</td>
<td>Discussion of Key Policy Recommendations from the TALES 2019 Symposium.</td>
</tr>
<tr>
<td></td>
<td><em>Working Group</em></td>
</tr>
</tbody>
</table>

| 14:30 - 15:00 | **Afternoon tea**                                                   |

| 15:00 - 15:40 | **Wrap-up reflections on TALES 2019 Symposium, general discussion and symposium closing ceremony** |
|               | **Panellists:**                                                     |
|               | Prof Jennifer Mindell, *UCL (University College London)* London, UK  |
|               | Dr Enrique García Bengoechea, *University of Limerick*, Ireland     |
|               | Mr Gareth Fairweather, *Ministry of Transport*, New Zealand         |

| 16:00 - 17:00 | **Public Forum: Transforming Cities into Active, Healthy and Sustainable Places** |
|               | **Speaker:** Hon Julie Anne Genter, *Minister for Women*, Associate Minister of Transport and Associate Minister of Health |
|               | **Panellists:**                                                     |
|               | Prof Jennifer Mindell, *UCL (University College London)* London, United Kingdom |
|               | Ms Celia Wade-Brown QSO, *Living Streets Aotearoa*                 |
|               | Ms Sara Templeton, *Councillor*, Christchurch City Council          |
|               | Mr Martin Dutton, *Ministry of Health*, New Zealand                 |
|               | Mr Gareth Fairweather, *Ministry of Transport*, New Zealand         |
|               | Ms Louise Baker, *WSP Opus*, Auckland, New Zealand                  |
|               | Dr Mark Smith, *Community Member*, New Zealand                      |
|               | **Facilitator:** Prof Simon Kingham, *Ministry of Transport*, New Zealand |

| 17:00 - 19:00 | **Clock Tower Picnic** (University of Otago 150th Anniversary Celebration) |
|               | This event is organised by the University of Otago                 |
“Transforming Cities into Active, Healthy and Sustainable Places”

Friday, 15 February 2019, 4:00 pm to 5:00 pm
University of Otago, Castle Lecture Theatre Complex, Castle 2, Dunedin, New Zealand

Transforming cities into active, healthy and sustainable places is a compelling long-term investment in people, health, inclusive access, economic prosperity and environmental sustainability. This is included in the New Zealand Ministry of Transport’s Transport Outcomes Framework.

Creating healthy, active environments is also one of the key recommendations of the World Health Organization’s Global Action Plan on Physical Activity 2018-2030. Healthy cities recognise the value of active living and provide opportunities for everyday physical activity for all their citizens.

Successful city transformations require collaborations and partnerships across multiple disciplines and sectors. Join us for a panel discussion with experts from multiple fields about their experiences, lessons learned and visions for transforming modern cities into active, healthy and sustainable places.

Speaker:
- Hon Julie Anne Genter, Minister for Women, Associate Minister of Transport and Associate Minister of Health, New Zealand

Panellists:
- Prof Jennifer Mindell, UCL (University College London), London, United Kingdom
- Ms Celia Wade-Brown QSO, Living Streets Aotearoa, New Zealand
- Mr Martin Dutton, Ministry of Health, New Zealand
- Mr Gareth Fairweather, Ministry of Transport, New Zealand
- Ms Sara Templeton, Councillor, Christchurch City Council, New Zealand
- Ms Louise Baker, WSP OPUS, New Zealand
- Dr Mark Smith, Community Member, New Zealand

Facilitator:
- Prof Simon Kingham, Ministry of Transport, New Zealand
Symposium Social Events

Social events are a great way to connect with your colleagues and make new friends amongst the symposium attendees. The Organising Committee would like to invite you to the following events:

Opening Reception

Wednesday, 13 February 2019, 5:00 pm to 7:00 pm

The Opening Reception of the symposium will take place at the University of Otago Staff Club (2-minute walk from the symposium venue). Drinks and nibbles will be provided. This is a great opportunity to meet up with colleagues and make new friends.

Please note that an Opening Reception ticket is included in full registration.

Walk to the Botanic Gardens

Thursday, 14 February 2019, 5:00 pm to 6:00 pm

Enjoy a 20-minute walk to the beautiful Dunedin Botanic Garden and a leisurely stroll around the lovely garden before returning to the conference venue. The Dunedin Botanic Garden is New Zealand’s first botanic garden and holds the status of six-star Garden of International Significance.

Please note that there is no cost for this event. The event is weather-dependent.

Conference Dinner

Thursday, 14 February 2019, 7:00 pm to 9:00 pm

The Symposium Dinner will be held at the University of Otago Staff Club. Address: Leith Walk, Dunedin (2-minute walk from the symposium venue) See map

Please note that the Symposium Dinner ticket is not included in full registration and will be available for purchase during the registration process ($90 per ticket).
**Dunedin Heritage Walks**

“More than 100 years ago, Dunedin was New Zealand's largest and wealthiest city, following the discovery of gold in Otago, and large investments in industry, shipping and commerce.” Two Heritage Walks (2 km each, 1 hour) offer the opportunity to see much of Dunedin’s Victorian past, as well as changing skylines and unexpected views.

[See the Dunedin Heritage Walks brochure](https://www.otago.ac.nz/alumni/news/events/otago701163.html) (PDF format, 168 KB)

**Clock Tower Picnic**

**Friday, 15 February 2019, 5:00 pm to 7:00 pm**  
**University of Otago Campus**

This event is organised by the University of Otago as a part of the University’s 150th Anniversary Celebrations.

[https://www.otago.ac.nz/alumni/news/events/otago701163.html](https://www.otago.ac.nz/alumni/news/events/otago701163.html)
Community Severance – the Barrier Effects of Busy Roads

Jennifer Mindell PhD, Peter Jones PhD, Shaun Scholes PhD, Laura Vaughan PhD, Muki Haklay PhD, Nora Groce PhD, Ashley Dhanani PhD, Paulo Anciaes PhD, Jemima Stockton PhD, Sadie Boniface PhD.

UCL, London, UK

Background: Community severance occurs when the speed and/or volume of traffic, or transport infrastructure, interferes with individuals’ ability to access the goods, services, and people they need for a healthy life. This community severance also reduces use of streets as social spaces, and young and older people’s independence. It is exacerbated by the discrepancies between older people’s walking speed and the assumed speed of pedestrians in setting signalised crossings. Our Street Mobility and Network Accessibility project aimed to develop a suite of tools to assess and value community severance and to validate them through triangulation of findings from different data sources.

Methods: We developed, tested and refined new tools, including:

- participatory mapping - engaging local residents to provide qualitative data on the locality;
- a health and neighbourhood mobility survey to collect data from a random sample of local residents;
- a community severance valuation tool, based on data from UK-wide stated preference surveys;
- walkability models; and
- video surveys, to determine pedestrian and motorised traffic flows and pedestrian crossing behaviours.

We also employed spatial analysis, using space syntax, and street audits. These were all tested in three case studies.

Results: Community severance occurs where high walkability (the potential to travel on foot) co-occurs with high motorised traffic levels. Despite its high walking potential, the high traffic levels, the associated air and noise pollution, and the lack or poor quality of pedestrian crossing facilities make Finchley Road unpleasant for pedestrians. This has a negative impact on the overall mobility and accessibility of local residents and on the quality of their walking trips. Wellbeing was affected by living close to busy roads. The analyses showed coherence between the findings from the different measurement tools applied individually and revealed interconnections between factors which contribute to severance.

Conclusions: Coherence of qualitative & quantitative findings from the different approaches support the validity of the tools. The toolkit went online in 2017 at www.ucl.ac.uk/street-mobility for use by local communities, practitioners, and researchers. The valuation tool is being finalised and will be available later this year. By providing valuations of the impacts of community severance on the local community, policy-makers and practitioners can prepare business cases for expenditure to reduce severance. The toolkit is intended for use by practitioners, policy-makers, community groups, and academics including public health, transport planners and engineers, and urban planners.

Support/Funding Source: The Engineering and Physical Sciences Research Council (EPSRC), the Economic and Social Research Council (ESRC), and the Arts and Humanities Research Council (AHRC), grant EP/K037323/1.
Transitioning from the car-dominated transport system towards more sustainable active transport is necessary to address climate change and global concerns about increasing prevalence of non-communicable diseases. Active transport to school (ATS) is a convenient way to maintain or increase adolescents’ physical activity. Encouraging ATS has the potential to develop into a life-long, environmentally sustainable, economical practice. The Built Environment and Active Transport to School: BEATS Research programme (www.otago.ac.nz/beats) collected BEATS Study data in Dunedin, New Zealand, in 2014-2017 (12 schools; 1,663 adolescents) and BEATS Rural Study data in the rural Otago region, New Zealand in 2018 (11 schools; 1014 adolescents). In 2018, the programme has been extended to examine transport to school through a cultural lens (BEATS Cultural Study; 2018-2019) and a natural experiment to examine the effects of cycling and pedestrian infrastructure construction on adolescents’ school travel (BEATS Natural Experiment; 2019-2022). Dunedin-based BEATS Study found that 60% of adolescents use motorised transport to school. Common barriers to ATS included distance, personal barriers (e.g. heavy school bags), lack of social support, convenience of being driven to school, bad weather, built environment obstacles, traffic safety concerns, and absence of school zoning. Cycling to school was less common than walking, received less social and infrastructure support, and was perceived as less safe. The BEATS Rural Study conducted in Otago showed different travel to school patterns with greater rates, interest and intention of adolescents to cycle to school, less traffic-related concerns and higher walkability of school neighbourhoods compared to urbanised areas. Although less urbanised areas had higher rates of active transport if adolescents resided ≤4.8 km from school, motorised transport dominated adolescents’ travel to school across Otago. Future interventions and policies for promoting sustainable modes of transport in New Zealand should focus not only on urban centres but also semi-urban and rural settings.

Support/Funding Source: The BEATS Study was supported by the Health Research Council of New Zealand (14/565), National Heart Foundation of New Zealand (1602 and 1615), Lottery Health Research Grant (Applic 341129), University of Otago Research Grant (UORG 2014), Dunedin City Council and internal grants from the School of Physical Education, Sport and Exercise Sciences, University of Otago. The BEATS Rural Study was supported by University of Otago Research Grant (UORG 2018) and Otago Energy Research Centre Seed Grant (2018).
Neighbourhoods for Active Kids: Understanding Children's Neighbourhood Use, Perceptions, and Preferences, and Links with Health

Melody Smith PhD¹, Victoria Egli MIPH², Erika Ikeda MHSi², Niamh Donnellan PhD¹, Lisa Mackay PhD².

¹The University of Auckland, Auckland, New Zealand
²Auckland University of Technology, Auckland, New Zealand

Background: Neighbourhood environments can hinder or promote health behaviours and outcomes in children. Child-centred approaches to understanding links between neighbourhoods and health are needed in order to gain a comprehensive understanding of environmental features that matter to children.

Methods: Neighbourhoods for Active Kids is a cross-sectional study of environments and health in children living in urban and suburban neighbourhoods in Auckland, New Zealand. Children’s neighbourhood use, perceptions and preferences were captured using participatory geographic information systems (PGIS). Objective measures of the built environment were derived using GIS. Parent perceptions and household demographic information were captured using computer-aided telephone interviews. Children’s height, weight, and waist circumference were measured by trained researchers using ISAK protocols. Children’s physical activity was assessed using 7-day accelerometry. Associations between the built environment and health behaviours and outcomes were assessed using structural equation modelling and multilevel modelling. A new model for children’s neighbourhood use and preferences was developed using content analysis from the PGIS.

Results: 1102 children from 19 schools participated in the study. Associations between the neighbourhood environment and health behaviours (physical activity, sedentary time, active travel) were identified in the expected directions. Children frequently mentioned public outdoor spaces, natural environments and shops, spending time with friends, and purchasing or consuming unhealthy food when mapping neighbourhood environments. Children also enjoyed time with their friends on the route to school, and were cognisant of traffic exposure issues including safety and air quality when travelling to school.

Conclusions: Neighbourhood environments are significantly associated with health promoting behaviours in children. There is some evidence that inequities exist, particularly with regard to nutrition environments. Environmental policies and practices that prioritise health may have a substantial positive impact on children’s health behaviours and outcomes.

Support/Funding Source: Neighbourhoods for Active Kids was supported by a Health Research Council of New Zealand Research Grant (14/436). MS is supported by a Health Research Council of New Zealand Sir Charles Hercus Research Fellowship (17/013).
The Promise of Participatory Research in Scaling Up Physical Activity Interventions

Enrique García Bengoechea PhD¹, Berta Murillo Pardo PhD², Jon Salsberg PhD³.

¹Department of Physical Education & Sport Sciences, University of Limerick, Ireland
²Department of Music, Plastic, and Bodily Expression, University of Zaragoza, Spain
³Graduate Entry Medical School, University of Limerick, Ireland

Physical activity (PA) promotion has been criticised on the basis of social and cultural validity, with deficits identified in transferability, scalability and ultimately sustainability of programming beyond initial demonstration projects. Taking a participatory research (PR) approach, one that meaningfully involves community end-users and other stakeholders in the planning, implementation and evaluation of interventions, provides both promise and challenges for scalable, sustained PA promotion programming.

In this presentation, we will show the value of adding PR to each research phase, and the challenges of using this approach in PA promotion, as well as how integrating the main elements of PR can strategically help scale-up of PA interventions. Using the main PR principles and recommendations proposed by Cargo & Mercer 2008, we will extract and discuss relevant factors to achieve successful scale-ups of PA interventions based on the best possible evidence, both in terms of evidence-to-practice and practice-to-evidence. We propose an optimal approach to strengthen PA promotion which follows the PR conceptual framework and applies the three major PR elements of mutual respect and trust; capacity-building, empowerment and ownership; and accountability and sustainability.

Taking a PR approach can provide both the conceptual underpinning as well as practical strategies for creating sustainable PA interventions. The PR approach fosters end user ownership and helps ensure that the evidence is derived from the context where it needs to be applied; thus increasing external validity and, ultimately, sustainability. We propose that the challenge of preserving the integrity of the PR conceptual model while scaling up local demonstration studies into real-world programming may be addressed through concerted application of a planning and evaluation framework to guide planners in maintaining the core PR principles throughout the scale up process. Thus, through the judicious application of and attention to PR principles through all stages of planning, we believe that PA promotion interventions may be successfully scaled up to impactful, sustained, real-world programmes.
Perceived Accessibility and its Role in the Sustainable Transformation of Cities

Anna-Lena van der Vlugt MSc¹, Angela Curl PhD², Dirk Wittowsky PhD¹.

¹ILS - Research Institute for Regional and Urban Development, Dortmund, Germany  
²University of Canterbury, Christchurch, New Zealand

**Background:** Modern and sustainable cities are characterised as accessible and walkable places for all population groups, and the quality of life in cities is influenced by how public space can be used by citizens. In order to counteract social exclusion and its consequences for individual health through lack of accessibility, it seems important to recognise accessibility as a basic prerequisite for participation in society and as the primary objective of sustainable transport planning. But how is the urban accessibility perceived by its inhabitants and which interactions between perceived accessibility and realized traffic behaviour can be identified? An essential objective of our research is to improve existing accessibility modelling on a local level by taking perceptions of the environment and accessibility into account.

**Methods:** We used a multi-method study design and conducted surveys in two investigation areas in Hamburg, Germany (household survey, sample size: 286) and Nottingham, UK (household survey, sample size: 358). We analysed and compared the accessibility that is objectively measured (Walkscore) with the accessibility that is subjectively experienced by the inhabitants in the two investigation areas.

**Results:** With the intention to identify influencing predictors on the individual perception of accessibility, we developed a measurement of perceived accessibility. Our multivariate regression models show that the perception of the built environment, individual restrictions, as well as the perception of safety has a considerable influence on perceived accessibility. This also influences the realised traffic behaviour with resulting consequences for the individual health.

**Conclusions:** The perception of accessibility and the consequences for individual health is much more complex than can be measured with objective parameters of accessibility. We suggest integrating perceptions in further transport planning to minimize the danger of social exclusion, promote individual mobility, especially for people with reduced mobility, and help to create a sustainable and healthy environment for everyone.

**Support/Funding Source:** ILS - Research Institute for Regional and Urban Development, Dortmund, Germany
Policy Instruments for an Environmentally-Sustainable Road Transport Network

Mingyue Sheng PhD, Basil Sharp PhD

The University of Auckland, Auckland, New Zealand

Background: Many of New Zealand’s urban and city local roads and motorways are heavily congested during peak hours.

Description: This paper aims to identify potential externalities that the transport sector generates and then, explore appropriate policy integration, which could generate a sustainable transport system capable of reducing transport emissions and producing more socially equitable outcomes. To achieve the above objectives, this paper first outlines background information about the New Zealand transport sector, with a particular focus on the likely impacts from climate change. The nature, and magnitude, of negative externalities associated with transport sector are discussed. Finally, an effective integration of policy instruments to combat environmental issues, including the realisation of network effects, investment in public transport, incentives to encourage walk and cycle, charging congestion tolls, and promoting safer travel modes apart from car travelling, in order to achieve a sustainable transport network is proposed.

Lessons Learned: It is proposed that behavioural change of road users brought about by policy is a compulsory part of achieving stabilisation of greenhouse gas emissions from the transport sector.

Conclusions: Although motor vehicles will remain an essential component of the transport system in the near future, improving the quality of public transport modes and introducing “soft” behavioural change related policies, will indeed encourage road users to use this environmental-friendly mode of transport. Such a shift will subsequently reduce congestion, at least at peak periods, and free up the arterial roads and motorways for freight transport as well as commercial travel, thus improving overall productivity and competitiveness of economic activities. Other options that will also contribute to a sustainable transport network include providing better urban design around city centres, as well as local neighbourhoods, placing a congestion toll during rush hours, and/or promoting safer travel modes apart from car travel.

Support/Funding Source: Financial support from the Energy Centre, Business School, The University of Auckland is gratefully acknowledged.
‘Go Well’, The Hawke’s Bay District Health Board Travel Plan

Lisa Malde MURP, MUD1, Louise Baker MSc2.

1Hawke’s Bay District Health Board, Hastings, New Zealand
2WSP Opus, Auckland, New Zealand

Background: The Hawke’s Bay District Health Board (HBDHB) serves a population of 155,000 and employs c. 3,000 staff, making it the region’s largest employer. By 2014, the HBDHB was facing increasing problems with parking and access at its main hospital site in Hastings. Facilities Management was tasked with finding a holistic solution that met the following objectives: improving access to facilities for low income families, promoting exercise, reducing the carbon footprint, and increasing the availability of car parks.

Description: In response, the HBDHB worked with WSP Opus in 2015 to design the ‘Go Well’ travel plan and in 2016, the HBDHB hired a Sustainability Officer with the first project being implementation of ‘Go Well’, which included: building more on-site facilities for cyclists, encouraging walking and cycling, expanding free patient and subsidising staff bus transport, staff carpool programme, funding ‘Go Well’ through a parking charge of $1/day.

Lessons Learned: Early results from the travel surveys (2015: n=831; 2017: n=335; 2018: underway) and monthly bus counts are positive, indicating a shift in travel behaviour. Results indicate the following changes in staff travel behaviour: driving alone (-10%), arriving by car (-9%), travelling by bus (+4%), travelling by bicycle (+3%), and in patients; driving alone (-8%), arriving by bus (+11%) and walking (+2%).

Conclusions: Implementing a comprehensive travel plan can increase use of sustainable transport modes and physical activity, reduce single occupancy vehicle travel and carbon emissions and has laid the foundation for HBDHB’s Sustainability Programme. HBDHB hopes that its travel plan will catalyse greater change in the region, as one of the travel survey respondents noted in support of the plan: “...it [the travel plan] could mean that our Hospital’s modest actions around transport could snowball into a much more profound shift in Hawke’s Bay towards a more resilient and healthy region.”
The 9 to 5 Cycle: Encouraging Active Commuting

Minn Brodie BSc (Hons)¹, Thomas McNaughton BSc/BCom (Hons)¹

¹Christchurch City Council, Christchurch, New Zealand

**Background:** With the post-2011 earthquake rebuild, Christchurch city has a unique opportunity to increase active commuting, having unprecedented improvements in cycling infrastructure, and a sizable proportion of the population already riding on an “occasional” or “recreational” basis. This paper outlines a series of targeted local programmes that have increased biking to work locally, and have also increased the uptake of other active, public and shared transport. This is primarily through providing practical and engaging information to support people making informed decisions on how they get to work. It also highlights the (pretty simple) insights that have informed the direction.

**Description:**
- Central City Travel Programme, covering over 4,000 staff that have moved into the central business district, with ongoing support for organisations as they reacquaint themselves with the city.
- Engaging cycling maps/guide and other local educational material.
- Specific interventions that address local barriers to cycling (workshops etc.).

**Lessons Learned:**
- Key for in-person (1:1 support for people to overcome their individual barriers and to decide on what options suit their level of confidence/situation/circumstances.
- To provide information on all modes of transport, rather than simply pushing one mode in isolation.
- To add the most value for customers, it’s important to cover all possible transport options.
- It is important to provide a service that is simple for organisations to uptake, but is still a partnership approach.
- Effective targeting is absolutely vital, both in terms of who the programmes are delivered to and what “barriers” are focused on.
- Importance of taking a holistic approach in educating on transport options – physical and mental wellbeing, financial comparisons.
- Support for community-led activity where possible.

**Conclusions:** Travel Demand Management programmes are highly effective in supporting the community making informed choices, shown both by the changes in behaviour pre and post engagements, and the feedback on what impact the programme had.

**Support/Funding Source:** Greater Christchurch Partnership, Christchurch City Council
Background: As an off-shoot of Travel Demand Management (TDM), school travel plans (STPs) have been around since at least 2005 in the United States, Canada and the UK. The general aim of STPs is to improve the range of transport choices for students and therefore their health, learning, and safety at the school gate.

Description: The author’s experience with the rigorously prescribed process in California as well as nine plans in Hastings District, three in Palmerston North, and school travel planning activities in Whakatāne District have shown that having a flexible approach helps maximise the achievement of outcomes. Robust evaluation is necessary to quantify the benefits of investing in STPs and help communicate these benefits to prospective schools. This paper will document the evolution in practice from 2013 to 2018 and highlight the most successful aspects from each community the author has worked in.

Lessons Learned: Sticking to a template can save time, but also stifle the opportunity for schools to be more active participants. As with any community engagement activity, the STP process needs to be eye-catching and easy to navigate – a text heavy plan may be ideal for the council staff who need to back up a report to council but is less accessible to parents and school administrators. Simple brochures and maps are the most commonly requested outputs.

Conclusions: The most important finding is that the STP process itself can be the seed of a more productive collaboration between council staff, school administrators, board members, and parents. There is an opportunity to tie the development of an STP to road safety and infrastructure funding.

Support/Funding Source: The author wishes to thank staff from Hastings District Council, Palmerston North City Council, and Whakatāne District Council. Other key sources cited in this research and practice paper include Auckland’s Travelwise, New Plymouth’s Let’s Go, and the Bike On Trust.
Background: Although active transport to school has been extensively studied in urban settings, perceptions of active transport among rural adolescents remain largely unknown. This study compared perceptions of walking versus cycling to school among rural adolescents in New Zealand.

Methods: Adolescents (n=427; age: 13-18 years; 11 schools) from rural Otago living ≤4.8 km from school completed a questionnaire about school travel and their perceptions of walking and cycling to school. Data were analysed using paired t-test and Chi-square tests.

Results: Overall, adolescents’ school travel included 56.7% active transport only, 30.7% motorised transport only, and 12.6% mixed modes. Nearly half of adolescents walked (48%) and 16% cycled to school regularly. Most adolescents believed both walking (92.7%) and cycling (86.9%) to school were great ways to get exercise. Compared to cycling, adolescents perceived walking to school as safer (92.7% vs 80.3%) and more pleasant (62.3% vs 44.3%), with less logistic-related barriers (such as need for planning or getting sweaty), offering better opportunities to socialise (57.4% vs 25.5%), receiving greater support from peers (60.7% vs 28.6%), parents (70.7% vs 39.8%) and schools (37.0% vs 25.3%) and having better infrastructure support (i.e. availability of footpaths vs cycle paths) (85.2% vs 43.3%) (all p<0.001). Adolescents also reported having greater confidence (89.5% vs 72.8%), desire (46.4% vs 21.5%) and intention (52.2% vs 19.7%) to walk versus cycle to school regularly (all p<0.001). In contrast, trip duration (walking vs cycling: 42.2% vs 12.9%), distance (18.3% vs 6.8%), feeling tired (44.3% vs 37.7%) and cold/wet weather (58.3% vs 47.3%) were perceived as greater barriers for walking versus cycling to school (all p<0.001).

Conclusions: Rural adolescents perceived that walking to school was safer and had better social and infrastructure support compared to cycling. Therefore, different approaches are required to promote walking versus cycling to school in rural settings.

Support/Funding Source: The Built Environment and Active Transport to School (BEATS) Rural Study was supported by University of Otago Research Grant (UORG 2018) and Otago Energy Research Centre Seed Grant (2018).
Adolescents' Perceptions of the School Neighbourhood Environment in Rural Settlements, Small and Medium Urban Areas

Brittany White BPhEd (Hons), Sandra Mandic PhD.

Active Living Laboratory, School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand

Background: Active transport to school (ATS) in an easy and effective way to increase physical activity (PA) in adolescents. Perceptions of the school neighbourhood environment can influence an adolescents' transport to school behaviours. This cross-sectional study compared adolescents’ perceptions of the school neighbourhood environment in small-to-medium urban areas (SMU) versus rural settlements (RS) in Otago, New Zealand.

Methods: Adolescents from 11 secondary schools (6 located in SMU and 5 in RS), living ≤4.8 km from school reported their perceptions of the school neighbourhood environment. All adolescents completed an online survey (n=471; 56.9% female; age 15.29±1.34 years) and a subgroup of adolescents completed a modified version of the Neighbourhood Environment Walkability Scale for Youth questionnaire (NEWS-Y) (n=166; 53.7% female; age 15.26±1.37 years). Data were analysed using Chi-square tests and t-test for independent samples.

Results: Compared to RS, SMU adolescents expressed greater concerns about unsafe road crossings (SMU vs RS: 44.1% vs 28.9%; p=0.014), high traffic volume (37.2% vs 19.7%; p=0.003), and too many vehicles stopping and/or parking around school (40.3% vs 23.7%; p=0.006). SMU adolescents reported higher residential density (SMU vs RS: 64.81±21.81 vs 57.64±14.29; p= 0.014) and land mix use access (3.18±0.34 vs 3.04±0.35; p= 0.008) and lower diversity of land use (2.94±0.64 vs 3.21±0.51; p=0.003) and access to recreation facilities (3.26±0.77 vs 3.72±0.55; p=<0.001) compared to their peers living in rural areas.

Conclusions: Compared to RS adolescents, SMU adolescents reported more traffic concern about their school neighbourhoods. Adolescents attending schools in rural areas had a better access to recreation facilities and greater land use mix diversity in their school neighbourhoods compared to their peers in SMU. School neighbourhood environment should be considered when designing future initiatives for promoting ATS among adolescents in both semi-urban and rural areas.

Support/Funding Source: The BEATS Rural Study was supported by University of Otago Research Grant (UORG 2018) and Otago Energy Research Centre Seed Grant (2018).
Forgotten Travelers: The Behaviour and Subjective Well-being of Skateboarders in Rural New Zealand

Aimee L Ward PhD¹, Rob McGee PhD¹, Philip Gendall PhD¹

¹University of Otago, Dunedin, New Zealand

Background: Skateboarding is underrepresented in the literature and when planning the built environment. Skateboarders are vulnerable road users (VRUs) and are often made to feel unwelcome no matter where they ride. In New Zealand (NZ), skateboarders can legally travel on the road but are often ostracized to the sidewalk, where they threaten pedestrian safety, and bylaws vary by city.

Methods: A comprehensive online survey, querying teenagers about their transport habits and subjective well-being, was disseminated to secondary schools in Southland, New Zealand in 2015 (n=775).

Results: Overall, 7% of adolescents (n=50; 72% male) used skateboarding for transport. Regardless of gender, skateboarders reported more physical activity during the previous month (mean=5.2 days/week) than their counterparts who walked (mean=4.3), cycled (mean=4.9), took the school bus (mean=4.3), drove (mean=4.5) or were car passengers (mean=4.3). Skateboarders accessed more activities during the previous month (mean=17.4) than other travellers (mean=15.8) Skateboarders also exhibited higher self-perceived strengths on a validated subjective well-being scale of 0-22 items (mean=14.4) when compared to the rest of the population (mean=11.5). However, skateboarders also reported more screen time use (mean=5.9 hours/day) than the rest of the sample (mean=4.76). Most skateboarded for transport because it was also their exercise (56%), they felt safe doing so (48%), saw it as socialization (46%), because it was their main mode of transport (36%), or because they didn’t have a licence or were unable to get a ride (22%, respectively). Thirty-two percent of those who skateboarded for transport lived within 3 km of the city centre.

Conclusions: Shared transport space is the wave of the future and should include all VRUs. The experiences of skateboarders should be considered in health and transport infrastructure policy, to provide a more comprehensive understanding of both teenage well-being and transport modal split to inform research and policy endeavours in NZ.

Support/Funding Source: University of Otago Doctoral Scholarship; Hugh Kidd Grant
New Zealand Response to the Global Action Plan on Physical Activity

Martin Dutton BA (Hons)

Senior Advisor, Wellness, Nutrition & Physical Activity Team, Ministry of Health, New Zealand.

The World Health Organization launched the Global Action Plan on Physical Activity on Monday, 4 June 2018. The Global Action Plan aims for a 15 percent global increase in the number of people who are regularly physically active by 2030. It will do this through directing countries to achieve a number of recommendations under four strategic actions:

1. Active society
2. Active environments
3. Active people
4. Active systems.

Sport NZ and the Ministry of Health are currently scoping a New Zealand response to the Global Action Plan, which will have an emphasis on making the healthy choice the easy choice.
Andrew Jackson
Consulting Jackson Ltd, New Zealand

Professor Richard Eisers’ paper on perception of risk explores how we deal with uncertainty (Eiser R, 2004). When we do not know what the outcome of our decision will be, do we take a risk or seek to avoid a risk. Eiser’s paper explores a range of issues such as the way we use heuristics (rules of thumb) to help us make decisions, how we can discount future gains, the way our views are reshaped by experiences, how we rely on the views of others and the consequent social amplification of risks. It is clear from this review of the literature that our brains are designed to find shortcuts, analysing in detail the likely outcome and the benefits and costs of every decision we make is just too difficult. So we find ways to "guesstimate" which leads to all sorts of consequences. Some consequences are positive: we do not freeze, and we can get on with life. Other consequences are negative: we miss out on immediate opportunities or we take decisions today (such as eating a poor diet) which in the long run are bad for us. As artificial intelligence develops providing for us "perfect" information (such as removing the need for us to control a vehicle, deciding what means of transport is best for us to take and planning how we will spend our time), what will that mean for the future health and environmental outcomes of transport?

Changing Urban Mobility Systems: Technical Problem or Adaptive Challenge?

Claire Pascoe MEnvStud
New Zealand Transport Agency, Wellington, New Zealand

Transport has predominantly been a technical discipline, with a strong focus on infrastructure and engineering. As we look to make changes to our transport system, particularly in urban environments, we need to consider the differences Heifetz and Linksy (2002) highlight between technical problems and adaptive challenges in their theory of leading change. Changing urban mobility systems may be more of an adaptive challenge than we’ve previously considered, and if so, what does that mean for our response and required leadership? This presentation will outline some of the key differences between technical problems and adaptive challenges and propose some thoughts on what this might mean for transport in our towns and cities.
Turning Active Transport Research into Policy:
A View from the Chief Science Advisor

Simon Kingham PhD
Ministry of Transport, Wellington, New Zealand

There is an increasing body of quality research being done in New Zealand and internationally on the role of transport in active living. In New Zealand, the transport sector is seeking to align policy with evidence. So how can research best inform policy? How can the ivory tower best talk to Wellington? This research will seek to identify how research can best inform policy. In addition to drawing on experience within the Ministry of Transport it will also reflect on two ongoing examples of research in Christchurch to examine how this can/cannot work. One is working with the local council to assess the impact of one of Christchurch’s new cycleways on cycle use. The second is assessing how the transport environment around a school is impacting travel to school, working with a range of local parties including the council, school and New Zealand Transport Agency.
Abstracts: Encouraging Active Transport

Active and Alternative Transport Use Amongst Older Drivers: Population-Based Survey

Rebecca Brookland PhD.

Department of Preventive and Social Medicine, University of Otago, Dunedin, New Zealand

Background: The aims: 1. Describe active and alternate transport use amongst a population-based sample of older drivers, 2. Describe the characteristics of older drivers who use active or alternate transport.

Methods: A nation-wide population-based survey of 1181 community dwelling older drivers (65y+) recruited from a stratified random sample from the electoral roll, with oversampling of Māori and those aged over 75y. Quantitative data was collected through structured telephone interviews. Measures included socio-demographics, health, and modes of transport use by frequency and destination.

Results: Current drivers were aged 65-96 years (mean=74y, SD=6y), and 47% were female. The sample was generally representative of the age, gender, Māori ethnicity and geographic distributions of the New Zealand (NZ) population over 65 years. Older drivers were very experienced drivers. Most had been licensed their adult life (mean=55 years; SD=7 years) and 75% were driving ≥4 days/week. Participants reported the modes of transport they had used in the previous three months: all older drivers had driven alone, 91% had driven with passengers and 85% had travelled as a passenger. Regarding their use of active and alternate transport modes: 51% walked (for transport), 9% had cycled (for transport), 31% had used public transport, and 5% had used senior driving services (paid/volunteer services). Findings relating to the socio-demographic and health characteristics of active and alternate transport users will be presented.

Conclusions: NZ has an ageing population; by 2036 almost one quarter of the population will be over 65 years. We are also a car dependent society, with the majority of trips made by private car. However, a reasonable proportion of older drivers also use alternate or active travel modes. Understanding the characteristics of these users will help inform the development of programmes and policy to encourage greater active and alternate transport use amongst older New Zealanders.

Support/Funding Source: Health Research Council of NZ Project Grant (15/261 2015-2018)
Older Adults’ Experiences of Mobility and Falling in the Outdoor Environment

Angela Curl PhD¹, Helen Fitt PhD¹, Anna-Lena van der Vlugt MSc², Melanie Tomintz PhD³, Rita Dionisio-McHugh PhD¹, Paul Beere PhD⁴.

¹Department of Geography, University of Canterbury, Christchurch, New Zealand
²ILS - Research Institute for Regional and Urban Development, Dortmund, Germany
³Geohealth Lab, University of Canterbury, Christchurch, New Zealand
⁴Independent researcher, Christchurch, New Zealand.

Background: Around one-third of people aged over 65 years fall every year in New Zealand. Falls can have serious impacts on health, lifestyles and daily mobilities. Many falls take place while people are walking outdoors but relatively little research focusses on outdoor falls. A strong body of research demonstrates relationships between the built environment, physical activity and active transport for all age groups, with some focussing specifically on older adults, a group for which active living is particularly important. This project seeks to build on that work by understanding how the urban environment influences falling and fear of falling among older adults.

Methods: We conducted an online questionnaire targeted at people aged over 50 years in the Greater Christchurch region during August and September 2018. We used a map-based online survey tool, Maptionnaire. This tool allowed respondents to place points on a map where they had fallen, or experienced positive or negative walking environments. We received 209 responses from adults aged 50-104 years.

Results: The majority of the respondents were active, with over 60% having walked for at least 10 minutes every day in the previous week. 35% of respondents had fallen in the previous year. Around half feared falling, particularly on uneven or slippery surfaces. Despite concerns around the built environment, only 2 respondents had reported issues to the council. Further results will be presented to understand factors associated with falling and fear of falling as well as the analysis of open-ended questions relating to the map-points.

Conclusions: Despite being a reasonably active sample, the respondents were concerned about falling. Many had fallen, and aspects of the built environment can contribute to this. The low levels of reporting problems show that more could be done to build an evidence base on the safety of the walking environment, particularly for older adults who fear falling.

Support/Funding Source: The study received seed funding from the Geospatial Research Institute (GRI) at the University of Canterbury.
Corporate Travel Plan, Social Justice, and Health: The Case of a Lubricants Corporation in Brazil

Ricardo Oliveira PhD¹, Victor Andrade PhD², Pedro Bastos MSc², Leticia Quintanilha MSc².

¹Laboratory of Active Living, Rio de Janeiro State University, Rio de Janeiro, Brazil
²Laboratory of Sustainable Mobility, Rio de Janeiro Federal University, Rio de Janeiro, Brazil

**Background:** Corporate Travel can contribute to supporting sustainable and efficient commuting habits. It can also impact on energy consumption, health and the economy. In Brazil, the lack of more effective public policies for integration of multiple modes of transport, as well as urban design and the provision of public transport services, are factors that affect the workforce and the environment. The MESSage Study (Acronym for Mobility, Energy, Sustainability and Health – in Portuguese) examines the modes of transportation carried used by the workforce from the largest distributor and marketer of petroleum derivatives and biofuels of Brazil and Latin America, using ecological models for active transport that accounts for individual, social, environmental and policy factors.

**Description:** The MESSage project will use a mixed method approach incorporating both quantitative and qualitative methods (surveys, georeferencing and mapping) to gather data from the workforce. The core data will include individual, social, cultural, built and policy environment variables such as socioeconomics, modes of transportation to work, health behaviour, physical activity levels, carbon footprint, perceived safety, social and family support, neighbourhood and workplace walkability, pedestrian and bike facilities, parking, traffic, building design and company policy for active transportation.

**Lessons Learned:** The present project has three learning objectives: (1) to discuss the travel patterns of the workforce and the impacts on energy consumption, health and the economy; (2) to present concepts of social justice and its relationship to corporate travel and chronic diseases; (3) to stimulate the audience discussion when presenting best practices, identifying future steps in both research and practice dimensions.

**Conclusions:** Creation of built environments and maintenance of natural environments which promote physical activity in workplaces, with a particular focus on providing infrastructure to support active transport is mandatory to reduce energy consumption and achieve positive impacts on health and the economy.
Spatial Analysis and Geovisualisation for Active Transport

Long Chen MSc1, Antoni Moore PhD1, Sandra Mandic PhD2.

1School of Surveying, University of Otago, Dunedin, New Zealand
2Active Living Laboratory, School of Physical Education, Sport and Exercise Science, University of Otago, Dunedin, New Zealand

Background: Spatial analysis and visualisation aspects of the geographical information science (GIS) are widely used in public health and transport planning. However, in active transport to school (ATS) research, including the BEATS Study, GIS has only been used as a tool for generating data for non-spatial analyses or for producing maps. This PhD research will apply quantitative spatial analysis tools, visual analytics and other GIS geovisualisation methods to ATS data from the BEATS and BEATS-2 Studies.

Methods: Kernel density estimation, clustering analysis and local indicators of spatial association (LISA) will be applied to help mapping and analysing the spatial patterns and distributions of adolescents’ transport to school behaviours. ATS correlates such as distance from home to school, altitude gain and land use mix along the school route will also be examined. Geographically weighted regression (GWR) modelling will examine the relationship between adolescents’ choice of ATS and relevant factors, supported by the application of visual analytics. In addition to the direct effects of the ATS correlates, a Decision Making Trial and Evaluation Laboratory (DEMATEL) will be used to evaluate the level of influence between ATS factors which might have indirect effects on ATS choices. Geographically Temporal Weighted Regression modelling will be applied to help with the spatio-temporal analysis of ATS correlates between BEATS and BEATS-2 data collected in 2014/2015 and 2019/2020, respectively. Geovisualisation methods will be applied to create a decision-making support package, to be presented to local government and schools. This package will include images, thematic maps, flow maps, and web-based GIS applications such as Esri Story Maps, non-spatial figures, plots, tables/charts, and description stories.

Conclusions: Results of this research will demonstrate the distribution of the ATS correlates and the relationship between the ATS factors through space and time in a visualised decision making support package.

Support/Funding Source: The BEATS Study was supported by the Health Research Council of New Zealand (14/565), National Heart Foundation of New Zealand (1602 and 1615), Lottery Health Research Grant (Applic 341129), University of Otago Research Grant (UORG 2014), Dunedin City Council and internal grants from the School of Physical Education, Sport and Exercise Sciences, University of Otago.
Teaching Water Skills for Life to Children in Open Water Environments

Chris Button PhD¹, Angela Button PhD¹, Anne-Marie Jackson PhD¹, Jim Cotter PhD¹, Brian Maraj PhD².

¹School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand
²Faculty of Kinesiology, Sport, and Recreation, University of Alberta, Edmonton, Canada

**Background:** In 2017, Water Safety New Zealand introduced a new national education programme called Water Skills for Life (WSFL). WSFL advocates that water safety skills should be taught alongside learning to swim in a range of aquatic environments. The aim of this study was to address whether it is effective to teach children WSFL competencies in open water environments.

**Methods:** Primary school aged children (n=98; 44 female, 54 male; 9.0 ± 1.3 years) volunteered to participate following parental consent. We assessed and taught the children in a 1-week course held at various locations including a swimming pool, a beach, a harbour and a river. Six competencies were tested before, immediately after the programme, and then 3 months later.

**Results:** Participants improved on five out of six competencies (Table 1). Furthermore, the improvements were still typically present 3 months later. Participants rated the buoyancy task (5-min floating and treading water) most difficult, followed by the propulsion task (5-min continuous swimming).

Table 1. Competency assessments and changes between the three phases of the study (+ represents improved performance, - represents decreased performance).

<table>
<thead>
<tr>
<th>WSFL competency</th>
<th>Participants achieving highest competency rating at Pre-test (%)</th>
<th>Change in participants achieving highest competency rating (%)</th>
<th>Post – Pre-test</th>
<th>Retention – Pre-test</th>
<th>Retention – Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>30</td>
<td>+33*</td>
<td>+33*</td>
<td>+0.2</td>
<td></td>
</tr>
<tr>
<td>Buoyancy</td>
<td>44</td>
<td>+17*</td>
<td>+28*</td>
<td>+13*</td>
<td></td>
</tr>
<tr>
<td>Submersion</td>
<td>48</td>
<td>+5</td>
<td>+16*</td>
<td>+11</td>
<td></td>
</tr>
<tr>
<td>Obstacle Course</td>
<td>51</td>
<td>+19*</td>
<td>+17*</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>Lifejacket &amp; Rescue</td>
<td>41</td>
<td>+25*</td>
<td>+15*</td>
<td>-14</td>
<td></td>
</tr>
<tr>
<td>Propulsion</td>
<td>47</td>
<td>+14*</td>
<td>+23*</td>
<td>+10*</td>
<td></td>
</tr>
</tbody>
</table>

*indicates significant difference (p<0.001)

**Conclusions:** Whilst nearly half the children were already competent in several WSFL skills, the education programme further improved competencies. Encouragingly, the levels of knowledge and skill retention were still high after 3 months. To safely recreate in open water may require a broader set of competencies than those typically acquired when learning to swim in a pool.

**Support/Funding Source:** Water Safety New Zealand, University of Otago.
Inspiring, Empowering and Supporting Adolescents in Rural Areas to Be Agents of Change: The Catalyst Project

Kimberley King MSc¹, Gavin Kidd MEd (Hons)², Andrew King BSc (Hons)³, Susan Sandretto PhD¹, Sandra Mandic PhD¹.

¹University of Otago, Dunedin, New Zealand
²Dunedin Secondary Schools’ Partnership, Dunedin, New Zealand
³Tokomairiro High School, Milton, New Zealand

Background: Lack of physical activity and increasingly sedentary lifestyles among adolescents contribute to poor health. Comprehensive findings from the BEATS Rural Study (BEATS-R) present a unique opportunity to inspire, empower and support secondary school students from the rural Otago region to engage with science and develop innovative ways to encourage healthy lifestyle behaviours in their schools and communities.

Description: The Catalyst Project will consist of several school-based events and activities designed for adolescents to engage with and utilise their school-specific BEATS-R findings and develop their own projects:

- BEATS Roadshow by researchers (presentation, video and infographics) at each school to showcase a snapshot of school-specific findings;
- Two workshops delivered by researchers for interested students at each school: Workshop #1 to teach students how to analyse, interpret and identify the issues affecting their school/community using the school-specific research findings (infographics and BEATS-R technical report) and Workshop #2 to give students the opportunity to conceptualise their projects to address identified issues, explore community consultation options and learn how to present projects/outcomes;
- School/community interventions designed, and implemented by students to address identified issue(s) (honoring ideas, writing proposals, consulting community and implementing projects with guidance from researchers and existing online education tool(s));
- Students will present their projects at regional mini-symposia.

Lessons Learned: Aligning project timeframes to fit school scheduling is challenging and budgeted transport costs will be sizeable. Schools and teachers favour projects that are flexible and integrated into current school curriculum.

Conclusions: Unlocking the curious minds of adolescents by presenting them with the scientific facts and giving them the platform to create a ‘call to action’ will inspire, empower and support them to engage with science. This approach may represent a powerful tool for encouraging healthy lifestyle behaviours among youth.
Physical Activity Maintains Sexual Activity and Reduces Insomnia Symptoms in Prostate Cancer Patients who are on Androgen Deprivation Therapy

Kathleen T. Galvin BSc¹, Sheila N. Garland PhD², Erik Wibowo PhD¹.

¹Department of Anatomy, University of Otago, Dunedin, New Zealand
²Departments of Psychology and Oncology, Memorial University, St. John’s, Canada

Background: Androgen deprivation therapy (ADT) is commonly prescribed to men with systemic prostate cancer. With the loss of androgen, men experience many adverse effects. Exercise benefits men on ADT by helping maintain muscle mass and control weight gain. We assessed how exercise levels contribute to various psycho-sexual parameters in men with prostate cancer.

Methods: This is a cross-sectional online questionnaire-based study. Cancer organizations in various countries (NZ, Canada, USA) distributed the survey on social media, support groups and mailing lists. Physical activity level was assessed by the Godin-Shephard Leisure-Time Physical Activity Questionnaire (Godin), with the cut-off score of 24 to categorise into active (52 and 22 men who had and had not been on ADT respectively) or non-active (35 and 19 men who had and had not been on ADT respectively). Other validated questionnaires were included to assess physical, psychological and sexual changes.

Results: 128 men (age = 67.9 ± 8.5 years old) completed the survey (32% have ever received ADT). Men taking ADT had significantly worse erection (P<0.001), orgasm ability (P<0.05), sexual frequency (P<0.01), and hot flushes (P<0.001) than men who were not on ADT. Among men on ADT, those who were active had better sexual arousal (P<0.05), higher sexual frequency (P<0.001), less problem with waking too early in the morning (P<0.05) and less impairment of quality of life by insomnia (P<0.05) than men who were not active. In men prescribed ADT, levels of exercise intensity were negatively correlated with level of sexual functioning concern (i.e. how concerned they were with their sexual function, r=-0.39, P<0.05) and hot flush interference score (r=0.40, P<0.05). No similar correlations were found in men who were not on ADT.

Conclusion: Being physically active may have physical and psycho-sexual benefits in prostate cancer patients who are on ADT.

Support/Funding Source: Funded by the Department of Anatomy, University of Otago
Adolescents' Dietary Patterns in Different Geographical Locations Across the Otago Region, New Zealand

1Kirsten Coppell MPH, FNZCPHM, Anna Rolleston PhD2, Sandra Mandic PhD3

1Department of Medicine, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand
2Waikato University, Hamilton, New Zealand
3Active Living Laboratory, School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand

Background: More than one-third of New Zealand adolescents are overweight or obese. Context such as the home environment, school environment and consumer environment are likely to influence dietary choices. The number of fast-food outlets that cluster around New Zealand schools in urban areas has increased since the 1960s, particularly in high deprivation areas. We examined dietary patterns among adolescents attending secondary schools in urban and rural areas in the Otago region, New Zealand.

Methods: Adolescents dwelling in Otago (n=1887; age: 15.3±1.4 years; 52.7% females; 11.8% Māori) from Dunedin city (n=1149), small-to-medium urban areas (n=596) and rural settlements (n=142) completed an online survey about their dietary habits. Their height and weight were measured (without shoes and school blazers). Weight status was calculated and categorised (healthy and overweight/obesity). Comparisons were made between the three geographical locations using ANOVA and Chi-square tests.

Results: Among adolescents in Otago, 26.4% were overweight/obesity, with statistically non-significant difference across geographical settings (Dunedin city: 27.9%; small-to-medium urban areas: 24.5%; rural settlements: 23.2%; p=0.214). The frequency of consumption of fruit (74.5% ≥5 days/week) and vegetables (84.0% ≥5 days/week) did not differ by weight category or geographical location. Statistically significant differences were observed across the three geographical locations (Dunedin/small-to-medium urban areas/rural settlements) in the consumption of sweets (confectionary) ≥5 days/week (22.5%/19.8%/10.6%; p=0.007), sugar sweetened beverages ≥5 days/week (17.6%/10.9%/9.2% p<0.001) and fast foods ≥2 days/week (17.6%/15.3%/7.7%; p=0.009). Mode of transport to school was not related to adolescents' dietary patterns.

Conclusions: Dietary patterns appear to differ between adolescents dwelling in urban and rural areas in the Otago region of New Zealand. Identifying reasons for more frequent consumption of obesity-promoting junk foods among adolescents in urban versus rural environments could inform obesity prevention policies and actions.

Support/Funding Source: The Built Environment and Active Transport to School (BEATS) Rural Study was supported by University of Otago Research Grant (UORG 2018) and Otago Energy Research Centre Seed Grant (2018).
Background: Inspired by a presentation at last year’s version of this conference, my research team recently completed a scoping review examining the potential impact of autonomous vehicles on movement behaviour of humans (i.e., physical activity, sedentary behaviour, sleep) or mode choice (e.g., public transit), beliefs about movement behaviour or mode choice, or impact on environments that may influence movement behaviour or mode choice. The findings from the reviewed studies suggest that autonomous vehicles will have a profound impact on the built environment and mode choice of people residing in much of the developed world. As a result, the movement behaviour of residents in urban areas will be altered. We speculate that people will take fewer steps on a daily basis. I will discuss these findings and future directions for research and policy.
Creating Active and Vibrant Urban Environments through Integrated Land Use and Transport Planning: Evidence from London

Gareth Fairweather MSc
Ministry of Transport, Wellington, New Zealand

**Background:** Integrating land use and transport means much more than simply directing growth to well-connected places. Well integrated developments can create urban environments that have a positive impact on levels of active travel, health and social inclusion. Using London as a central case study, this presentation shows how well considered urban planning policy can deliver wider benefits by prioritising walking, cycling and public transport over the car, promoting the role of streets as places in their own right, and putting public transport interchanges at the heart of communities.

**Description:** London’s Mayor has dual statutory responsibilities for both planning and transport. In the context of an acute shortage of affordable housing, developable land and transport network capacity, London’s planning framework is increasingly being orientated towards creating denser urban environments where sustainable and active travel is prioritised. Policies that guide zoning, density and building design, car and cycle parking, urban realm and infrastructure funding, all help place healthy and active modes of transport at the heart of the strategy for growth. Polices work together to improve health and reduce health inequities, lower the dominance of cars and focus on streets as places of wellbeing and vibrancy, rather than simply as methods of connection.

**Lessons Learned:** Those delivering the Government’s Urban Growth Agenda (UGA) can learn from London’s planning framework. The UGA presents a unique opportunity to allow New Zealand’s cities to make room for growth and showcase quality built environments that deliver a range of wider benefits.

**Conclusions:** London’s experience reveals how practices of land use and transport planning can be aligned to deliver a range of positive social outcomes for cities. This is particularly relevant for New Zealand, given its increasingly urbanised population, and the need for its cities to grow as healthy, vibrant and inclusive places.
Moving Beyond Infrastructure: Changing the Culture (and mode) of Our Mobility

Ben Wooliscroft PhD.

University of Otago, Dunedin, New Zealand

Background: New Zealand is a car dominant country, with one of the highest rates of car ownerships in the Western World. That ownership rate continues to grow. Compounding the problems of lots of cars is the fact that we have an old fleet that is not efficient and travels large distances each year. Our obligations under the Paris Climate Change agreement require us to reduce carbon emissions, which are primarily a function of two things in New Zealand; agriculture and the way we move. There is clear evidence of significant latent demand for active mobility in New Zealand, but it remains unrealised because of concerns, primarily, about safety.

Methods: This presentation presents a conceptual model of the way our mobility culture is formed and reinforced. Building on previous conceptual models, mobility cultures integrates key institutions that impact on the way people move in a society.

Results: The mobility cultures model illustrates where changes need to be made if New Zealanders are going to feel safe travelling actively in the future. Which feedback loops should be interrupted? Where can policy makers, law makers and enforcement officers make the most impact? Which other institutions play critical roles in creating a perception, and to some extent a reality, of some modes being unsafe in New Zealand?

Conclusions: We must take a systems/cultural perspective if we want to see a significant increase in active mobility in New Zealand. The provision of separated infrastructure for cyclists, while an important signal, is not enough to provide safe routes from home to shops, to work and school. There is much more to be done and the mobility cultures model provides policy opportunities for a government wishing to make changes.
Much of the coverage in the media about the future of transport is focussed on the advent of autonomous, electric vehicles and the way the arrival of this technology will affect the future of transport. Will the technology deliver a safer or more sustainable transport system? Will it change the way we will travel? The New Zealand travel survey found that the only mode which increased its share of transport between 1988 and 2013 was car travel. Since 2013 there have been small gains in active and shared modes (0.1% each in cycling and public transport) following significant increases in investment in these modes. In the debate we will discuss whether the future of transport in New Zealand is something that will be shaped by emerging technologies or driven by our decisions. If shaped by emerging technology - will the transport system deliver us the outcomes we hope for? If it will be determined by our decisions, then what type of transport system should we be aiming for? If it is a move towards greater use of active and shared transport, what would realistic targets be for 2030, given the strong dependency on the car in New Zealand? What steps should we take to realise those targets? If we were a large corporate organisation wanting to sell a message about the need to change our transport expectations what would we do...?

Panellists:

Ms Celia Wade-Brown QSO, Living Streets Aotearoa
Prof Jennifer Mindell, UCL (University College London) London, United Kingdom
Prof John Spence, University of Alberta, Canada
Prof Simon Kingham, Ministry of Transport, New Zealand
Assoc Prof Ben Wooliscroft, University of Otago, New Zealand
John Lieswyn, ViaStrada, New Zealand
'Yes, it's fun, but ...': Young People Voice their Suggestions for Improvement of a Cycle Skills Training Programme

Christina Ergler PhD¹, Charlotte Flaherty BCom², Sandra Mandic PhD²

¹Department of Geography, University of Otago, Dunedin, New Zealand
²Active Living Laboratory, School of Physical Education and Exercise Science, University of Otago, Dunedin, New Zealand

Cycling is a healthy, low-cost, and low-carbon transport option. Promoting cycling as an alternative to motorized transport can help address global issues of obesity, lack of physical activity and climate change. In New Zealand currently only 2% of primary school students and 3% of secondary school students cycle to school. One reason for low cycling rates is that many children lack the confidence and competence for safe participation in on-road traffic. Cycle skills training programmes which teach the theory of safe cycling followed by off-road and on-road experiences are one way to overcome the lack of young peoples’ cycling confidence and competence. However, the implementation of these programmes is not systematic and little is known about how young people experience their training sessions or whether the current delivery practices of skills meet their needs. This presentation will discuss the challenges, opportunities and tensions young people voiced about their cycle skills training programme as well as their visions for an inclusive, supportive and effective cycle skills training. The 35 children (school years 7-8; 1 intermediate school) from Dunedin (New Zealand) who completed a cycle skills training at their school participated in focus groups, photovoice, a mapping activity and the creation of 3D cycle skills courses. Findings show that children valued the opportunity to be taught cycle skills in school and to practice their cycle skills on the road. However, they also suggested more skill-level based exercises, more time on bicycles and the inclusion of real-life situations during on-road sessions (e.g. cars passing cyclists in roundabouts). This research suggests that it is important to take young peoples’ voices into account for creating a fun and effective cycle skills training programme to ensure cycling as a positive experience for more young people in the future.

Support/Funding Source: University of Otago Research Grant (UORG 2017).
Highlights from Walk21 Conference in Bogota, Columbia

Celia Wade-Brown QSO
Living Streets Aotearoa

Walk21 Foundation is committed to sharing good practice, transport and health research and inspirational examples. I will share good ideas from this conference and workshops, plus some personal insights from three South American cities that could apply in New Zealand as our Government is committed to investing more with Councils in walking. Living Streets Aotearoa currently focusses on lower speeds, funding for walking, the school journey, standards for all walking infrastructure and we defend footpaths for feet.
Background: This paper reports my work as an elected member and chair of the Queenstown Lakes District Council Infrastructure Committee, where I am particularly focused on transport and its integral relationship with all other sectors of local governance. My councillor work is informed also by my role as a tertiary sector educator at Otago Polytechnic. My formal research has explored the convergence of two overarching exponential curves, the technological advancement curve and the environmental degradation curve, in a New Zealand context.

Description: Transport planning for the Queenstown Lakes District provides a lens for viewing systemic issues playing out in a district heavily reliant on both the perception of a pristine environment, and unsustainable, environmentally damaging ways of moving people about. Solving transport issues in Queenstown would have benefits to health and environment and would contribute strongly to the region’s sustainability.

Lessons Learned: The transport issue is a wicked problem because of its interconnectedness with other problems such as district planning, economic externalities and exponential population growth. Transport affects everything. For example, in Queenstown our high cost, low wage economy leaves working people reliant on private cars and affordable oil. They need to travel from cheaper suburbs and towns across winding dangerous roads to work serving tourists who have most likely contributed to the roads being less safe by driving. The roading infrastructure is poorly equipped to cope with the increasing volumes of traffic and all parties are contributing substantial carbon to the atmosphere. People must deeply understand the issues before they will accept solutions.

Conclusion: Transport issues cannot be viewed in isolation. A highly integrated approach using proven frameworks and the inclusion of many stakeholders is needed to find the intervention points that can drive simultaneous changes at different points in the system.
Active Living through Citizen Science: A “Bottom-Up” Approach to Promoting Activity-Friendly Environments and Health Equity

1Erica Hinckson PhD, 2Abby C. King PhD, 3Sandra J Winter PhD, 4Afroditi Stathi PhD, 2Ann W. Banchoff MPH.

1Auckland University of Technology, School of Sport and Recreation, Auckland, New Zealand
2Stanford University, School of Medicine, Stanford, CA, USA
3Stanford University, Stanford Prevention Research Centre, Stanford, CA, USA
4University of Birmingham, School of Sport, Exercise and Rehabilitation

Introduction: Government, national, and local agencies and organizations have been unable to systematically, and in a coordinated way, translate behavioural research into practice that makes a difference at a population level. One approach for mobilising multi-level efforts to improve the local environment for physical activity is to engage in a process of citizen science. Citizen Science here is defined as a participatory research approach involving members of the public working closely with research investigators to initiate and advance scientific research projects. We use “bottom-up” citizen science strategies aimed at increasing activity-supportive environments that can arguably accelerate environmental changes at the local community level. We describe the systematic, community-engaged research being conducted by the Our Voice Global Citizen Science Research Network—which currently involves 18 countries representing six continents and includes a New Zealand-based example.

Methods: Through the Our Voice process of Discovery, Discussion, Activation and Change, citizen scientists learn to use a simple mobile app to capture aspects of their local environments that impact their physical activity, analyse their own data, create realistic action plans, and engage with local stakeholders to advance activity-supportive changes in their environments.

Results: Several Our Voice projects will be highlighted in which citizen scientists used the mobile app and Our Voice process to identify environmental features that support or hinder residents’ regular physical activities. Examples of the types of information collected, issues prioritised, and practical solutions generated and implemented with relevant stakeholders will be presented.

Conclusion: Our Voice projects have been successful in generating direct citizen science and stakeholder engagement and action in developing realistic environmental and policy solutions in differing contexts and populations.

Support/Funding Source: Robert Wood Johnson Foundation Grant-ID#73344 [External funding sources]
Results from the Inclusive Streetscapes Project

Shanthi Ameratunga PhD\textsuperscript{1}, Julie Spray PhD\textsuperscript{1}, Anneka Anderson PhD\textsuperscript{1}, Janine Wiles PhD\textsuperscript{1}, Malakai Ofanoa PhD\textsuperscript{1}, Esther Willing PhD\textsuperscript{1}, Karen Witten PhD\textsuperscript{2}, Bridget Burdett PhD\textsuperscript{3}.

\textsuperscript{1}University of Auckland, Auckland, New Zealand
\textsuperscript{2}SHORE Centre, Massey University, Auckland, New Zealand
\textsuperscript{3}Stantec Ltd, Hamilton, New Zealand

**Background:** We explore the perspectives of older residents and disabled people with regard to how current transport plans and streetscapes enable or challenge their opportunities to get about their neighbourhoods and meaningfully participate in society.

**Methods:** This study is part of a larger community-based participatory research project and involves in-depth qualitative research interviews of 60 people aged over 60 years and/or live with a chronic illness or disability in four case study settings in Auckland: Te Puea Marae in Māngere (South Auckland); Pacific communities in Henderson/Rānuí/New Lynn (West Auckland); Glen Innes/Panmure (Central Auckland) and Howick (East Auckland).

**Results:** Go-along interviews complemented with Photovoice have generated a rich resource of data providing a nuanced understanding of the diverse context-specific ‘lived experiences’ of the participants. The themes identified in the four case study areas reflect the opportunities and challenges experienced by participants in getting about using different modes of travel, and how these influence their health, wellbeing and social connectedness.

**Conclusions:** The findings provide critical insights regarding (a) transport-related influences on community health and wellbeing, and (b) the transformative changes required in transport planning processes to enable older residents and disabled people to live the lives they value.

**Support/Funding Source:** Health Research Council of New Zealand.
Modelling Safe Walking and Cycling Routes for Adolescents in Dunedin, New Zealand

Mohammad Lutfur Rahman MPhil¹, Antoni Moore PhD², Sandra Mandic PhD¹.

¹Active Living Laboratory, School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand
²School of Surveying, University of Otago, Dunedin, New Zealand

Background: Existence of safe routes for walking and/or cycling to/from school may address safety concerns and encourage active transport to school among adolescents. The built environment features, school neighbourhood, and route to school characteristics influence adolescents’ choice of route for walking and cycling to school. However, it remains unknown how these characteristics could be optimised to create safe walking/cycling school routes for adolescents. This research will examine objectively and subjectively assessed built environmental features of school neighbourhoods in order to model safe walking and cycling routes to secondary schools in Dunedin, New Zealand.

Methods: This cross-sectional study will be an extension of the Dunedin-based Built Environment and Active Transport to School (BEATS) Natural Experiment to be conducted in 2019/2020. Assessments will include survey data about adolescents’ perceptions of their school neighbourhoods (1,500 adolescents from ≥10 schools), geographic information science (GIS) calculated built environment variables, environmental scan of school neighbourhoods (MAPS Global tool; completed in 2017-2018) and adolescents’ mapping of the school neighbourhoods (route to school and safe/unsafe areas; 30 adolescents per school). Collected data will be used to model safe routes for adolescents’ walking/cycling to schools for each participating school. Adolescents, teachers and school principals will have an opportunity to provide feedback on a draft of modelled safe walking/cycling routes for their school. This feedback will be incorporated in the development of the finalized safe walking/cycling routes for each school.

Implications: This research will inform city development policies and decision making regarding transport infrastructure investment and built environment changes for redesigning and upgrading the pedestrian and cycling network around secondary schools. The results will also inform the design of future interventions for promoting active transport to school by, for example, identifying locations for setting up drop-off zones along the recommended/safe walking/cycling routes to school.

Support/Funding Source: The BEATS Study was supported by the Health Research Council of New Zealand (14/565), National Heart Foundation of New Zealand (1602 and 1615), Lottery Health Research Grant (Applic 341129), University of Otago Research Grant (UORG 2014), Dunedin City Council and internal grants from the School of Physical Education, Sport and Exercise Sciences, University of Otago. Funding applications for BEATS Natural Experiment are in progress.
Background: School neighbourhood built environment (SN-BE) characteristics influence active transport to school (ATS) in children and adolescents, although relationships vary between countries. The present study examined context-specific associations between observed, objectively-measured and perceived SN-BE and ATS in adolescents from twelve Dunedin (New Zealand) secondary schools.

Methods: SN-BE assessments included environmental audit (MAPS Global) and Geographic Information Systems (GIS) spatial analysis using a 0.5 km street-network buffer-zone around each school. Adolescents’ school transport behaviours and school route perceptions were obtained from BEATS Student Survey (471 adolescents living ≤2.25 km from school; 15.2±1.4 years; 56.2% female). Data were analysed using Pearson’s Product Moment correlations and generalized linear mixed logistic regression.

Results: In bivariate analyses, ATS was not significantly correlated with SN-BE measures (MAPS Global and GIS). In contrast, ATS was negatively correlated with adolescents’ concern over safety of walking (r=-0.17; p<0.001) and cycling to school (r=-0.12; p=0.012) and high traffic volume along the school route (r=-0.10; p=0.024). Among MAPS Global variables, overall grand score, pedestrian infrastructure and pedestrian design sub-scales correlated significantly, but weakly, with adolescents’ school route perceptions (r=-0.18 to r=0.10; all p<0.05). GIS-computed SN-BE measures (intersection density, land use mix, walkability) also significantly correlated with adolescents’ school route perceptions (r=0.09 to r=0.24; all p<0.05). In a multivariate model adjusted for neighbourhood-level socioeconomic deprivation, gender and GIS-calculated walkability, only adolescents’ perception that walking to school was unsafe was a significant negative correlate of ATS, with consistently higher odds of ATS among adolescents with less safety concerns (p=0.016).

Conclusions: SN-BE features were not significantly correlated with ATS among Dunedin adolescents living ≤2.25 km from school, although they are likely to mediate adolescents’ perception of walking safety, which was the strongest correlate of ATS. Interventions to improve perceptions of walking safety should be considered as a part of comprehensive efforts to encourage ATS.

Support/Funding Source: The BEATS Study was supported by the Health Research Council of New Zealand (14/565), National Heart Foundation of New Zealand (1602 and 1615), Lottery Health Research Grant (Applic 341129), University of Otago Research Grant (UORG 2014), Dunedin City Council and internal grants from the School of Physical Education, Sport and Exercise Sciences, University of Otago. Tessa Pocock was supported by University of Otago Master’s Scholarship and Publishing Bursary.
Climate Safe-Housing: Adaptation in Action

Scott Willis MA¹, Camilla Cox MRRP¹, Martin Kean BDes², Caroline Orchiston PhD³.

¹Blueskin Resilient Communities Trust, Dunedin, NZ
²Otago Polytechnic, Dunedin, NZ
³University of Otago, Dunedin, NZ

Background: The Climate Safe House project is a flax-roots community project designed to develop housing in areas vulnerable to climate change impacts. Until we transition from a car dominant society and reduce carbon emissions, it is necessary to make changes to prepare for managed retreat.

Description: Right now, we are working with a vulnerable homeowner who is prepared to give up equity in the existing home in return for a warm, safe, efficient transportable eco-home with a low rental. We will transfer private risk to a collective solution of Climate Safe Housing. The new replacement eco-home and the risk will be community owned and managed.

Lessons Learned: Society is still ill-prepared for climate impacts and while the concept of Dynamic Adaptive Pathway Planning is understood theoretically, it is not yet practiced by local government. The tension between long term adaptive planning and immediate need as the climate changes is acute. We need lived examples, we need local know-how, and we need to tell our story to secure the resources to finally begin serious work on adaptation.

Conclusions: As a response to community feedback through adaptation workshops, and in response to direct community need we have been seeking partners to collaborate on Climate Safe Housing, one of the most critical needs that emerged from public meetings and from the community. To date we have approximately $110,000 confirmed sponsorship value offered, and we intend to submit our Building Consent Application before the end of 2018. Sponsor Eclectic Home Design is finalising the Building Consent application and this milestone which we expect to achieve in 2018 will be the springboard for construction and publicity of the project in 2019. By rolling up our sleeves and giving it a go, we aim to stimulate action through learning by doing.

Support/Funding Source: Formance (SIPs panels), Enphase (Home Energy Management System), Fulton Hogan (Transport), DCC (permits), BRANZ (various) Initial Volco Trust (land), Eclectic Home Design (design), TrenzHomes (construction).
Abstracts: Cycling and Sustainability

The E-Bike Revolution – Experiences of a Large Cycle Skills Training Provider in Facing an E-Bike Boom

Matt Shipman BA (Hons)¹

¹Greater Wellington Regional Council, Wellington, NZ

Background: Over the past two years Pedal Ready have been offering E-bike training and Have-A-Go style sessions with mixed success in the Wellington Region. Since the end of 2017, user demand has been off the chart.

Description: Over the past few years a number of factors have come together to shape the exponential growth in E-bike uptake. We consider the impact this has on cycle skills training provision.

Lessons Learned:

What makes people buy an E-bike?
- Price. With big cycle companies stepping up E-bike production the unit price has decreased.
- Design. E-bikes are now featuring integrated design and the aesthetics have improved markedly. The desirability of these new machines has increased.
- Acceptability. Even the purists have accepted the fact that E-bikes are not cheating. E-bikes are seen as fitting into the transport system, allowing people to go further, higher and more often.

What has the growth in popularity meant for Pedal Ready?
- Increased demand on E-bike training and Have-a-Go days.
- As early as end 2015 our Instructors attended a professional development course on E-bikes
- In mid-2017 we created an E-bike lesson plan to use for our E-bike training.
- Now, our E-bike sessions have been either full or over-subscribed, they are our fastest growing area and we work hard to keep up with demand

Are E-bikes perfect?
- Wind and hills are easily beaten. Is it too good to be true? I will briefly discuss how green E-bikes really are.

Conclusions: It will be interesting to see where E-bikes are taking us as a region.

Support/Funding Source: The Pedal Ready Cycle Skills Programme is funded by the Greater Wellington Regional Council, New Zealand Transport Agency and Accident Compensation Corporation
The Experiences of Electric Bike Users Within the Dunedin Community

Matthew Jenkins PhD1, Elaine Hargreaves PhD1, Nancy Rehrer PhD1, Mark Falcous PhD.1

1School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand

Background: Cycling can benefit public health by facilitating regular physical activity. However, would-be cyclists have reported barriers to conventional cycling, including long trip distances, a lack of physical fitness, and ‘hilliness’. Electric bikes (e-bikes) are an emergent form of transport that may help overcome such barriers, thus providing an additional route to regular physical activity. The current study aimed to understand the lived experiences of e-bike users and the perceived viability of e-bikes as a transport option in Dunedin.

Methods: Participants were recruited via local newspaper adverts and word-of-mouth. Within a single focus group, e-bike users (5 male, 3 female; age range 23 to 80 years old) were asked to discuss their lived experiences of riding e-bikes in Dunedin. A qualitative thematic analysis was used to develop themes that described those experiences.

Results: Six themes emerged that related to perceived positive aspects of e-bike use. These pertained to improved health and fitness, increased independence and mobility, the capacity to overcome environmental barriers, increased enjoyment of cycling, the ability to spend active time with family, and financial advantages over car usage. In terms of negative aspects of e-bike use, current local cycling infrastructure was perceived as insufficient (e.g., accessible battery charging, lack of secure storage), and the potential for decreased fitness compared to conventional cycling) was also mentioned. A final interesting aspect discussed was other road users’ attitudes to e-cyclists, which were experienced as both positive (e.g., curiosity) and negative (e.g., perception of e-bikes as ‘cheating’).

Conclusions: E-bike use can elicit both positive and negative experiences. Considering the mixed findings regarding other road users’ attitudes towards e-bikes, and the potential for this to impact on cycling safety, investigating such attitudes could represent a next research step. The presence of e-bikes on our roads is likely to proliferate over the coming years. Therefore, understanding the lived experiences of people using e-bikes within the local community is an important consideration, so as to create conditions that encourage safe cycling (and other road usage) for all.

Support/Funding Source: The Otago Museum Trust Board (Participatory Science Platform seed fund grant).
Bike With Us
Sue Smith DipSR, Lyndal Johansson BSR
Sport Hawke’s Bay, Napier, New Zealand

Background: Bike with Us is 5-week series focussed on learning to ride and gaining confidence for Green Prescription participants. A key focus was to provide a long-term sustainable programme to keep participants cycling. This initiative was developed following on from Green Prescription Cycle Taster sessions. All sessions were delivered by Skills Active Qualified Cycle Skills instructors with bikes and helmets provided.

Description: On average between 10-16 people participated each week with the group meeting in a different location in Napier and Hastings. The series was funded by Cycling New Zealand, with the idea that running a series of short pathway rides in different locations would provide a safe off-road learning environment and would grow interest and knowledge of our off-road cycling network in Hawke’s Bay. The series also offered the opportunity to win a bike and helmet if participants had attended four out of the five rides. “This programme Green Prescription and Bike with Us has changed my life for the better,” said Diana. “It’s motivated me to get active, eat healthier and especially helped me to cope with my anxiety and depression, giving me so much more confidence in myself that I can do it!” The attendance numbers were high considering the first series was delivered in winter. The series along with the Green Prescription Cycle Tasters has led to 2 regular cycling groups and 5 participants attending the Cycling New Zealand Ride Leader workshops who transitioned into becoming Ride Leaders for community cycling groups.

Lessons Learned: Nurturing friendships among the group helped build everyone’s confidence, motivation and a sense of looking out for one another, helped build a sustainable programme which works.

Conclusions: Sport Hawke’s Bay will continue to deliver the Bike with Us series to enable the Hawke’s Bay community to experience the joy of riding a bike and the opportunity for social connection and increased in physical activity.

Support/Funding Source: Cycling New Zealand, Sport Hawke’s Bay, Avanti Plus
Learning Journeys in the Local Environment Using Non-Motorised Forms of Transport

Shannon McNatty MPhEd¹

¹School of Physical Education, Sport and Exercise Sciences, University of Otago, Dunedin, New Zealand

Background: Education Outside the Classroom (EOTC) is recognised as an effective pedagogical approach. Students participation in active forms of transport usually involve getting to and from school. Opportunities for environmental, social and physical learning can be created when students are encouraged to use non-motorised forms of transport to negotiate cycle ways, tracks, and footpaths as part of an EOTC programme. Integrating active transport with curriculum learning.

Description: This innovative journey programme involved a small group of year seven and eight students (aged 11 and 12 years) with an outdoor educator every Friday from February to July 2018. Journeys linked to environmental, social, and physical learning objectives of the New Zealand curriculum.

Lessons Learned: Students’ journeying within their local environment by non-motorised form, enabled them to become familiar with the access of cycle ways and tracks in their community. Using their own methods of active transport was an empowering concept that led to conversations about repeating the experiences in their leisure time and environmental awareness. As the students developed their self-management skills, they also formed friendships and supported each other. The educator’s involvement in active transport methods alongside the students enhanced social relationships. The journey programme could be developed further with more connection with student’s classroom teacher and the in-class curriculum. However, the students felt it was easier to learn being active for much of the day.

Conclusions: The journey programme was an innovative, alternative approach to learning, which engaged a place responsive pedagogy. Positive aspects included broadening the range of curriculum areas where students learn experientially, enhancing activity levels, confidence, friendships, and connecting to the city and its green spaces. The pedagogical power of experiential learning outside the classroom, incorporating journeying using non-motorised transport was a unique innovation that could be applied more widely in New Zealand schools.
The evidence is clear - we need to transition to more active and sustainable cities both for our individual and population health and also for the health of our environment. This transition will take time because it takes time to consult and build the required infrastructure and to budget for the work. It also takes time for subsequent behaviour changes to manifest themselves. Yet there is pushback from many who are reluctant to change, and these voices can be noisy and aggressive. It is sometimes difficult for those who are making decisions to distinguish the noise from the numbers, but good data and ongoing engagement with stakeholders are making a difference in how the changes are perceived.

As we transition to this healthier, more sustainable way of living the removal of on-street car parks from outside businesses and residential properties, the narrowing of traffic lanes, removal of private motor vehicle access and the slowing down of streets can all play a part in forming a negative public opinion and pushback on new infrastructure to enable people to use a sustainable transport mode. This can be perceived as supporting modes for the “minority”. Although these changes are necessary, it can be done differently to reduce the public backlash. This presentation will focus on the factors which influence decision making at a political level and ways for planners, designers, advocates, experts, and others to engage with and support the processes and politicians involved.

Christchurch is on this journey and the transition is not easy, but we are making real progress. What can be learnt from Christchurch’s current journey towards a sustainable transport network and people friendly streets to both get the community mandate and maintain the political will to make these decisions?
Discussion of Key Policy Recommendations from the TALES 2019 Symposium

Members of the Working Group:

Assoc Prof Sandy Mandic, University of Otago, Dunedin, New Zealand
Assoc Prof Kirsten Coppell, University of Otago, Dunedin, New Zealand
Ms Celia Wade-Brown QSO, Living Streets Aotearoa, New Zealand
Mr Andrew Jackson, Consulting Jackson Ltd, New Zealand
Mr Martin Dutton, Ministry of Health, New Zealand
Mr John Lieswyn, ViaStrada, Christchurch, New Zealand
Prof Jennifer Mindell, UCL (University College London), London, United Kingdom
Prof John Spence, University of Alberta, Edmonton, Canada
Prof Erica Hinckson, Auckland University of Technology, Auckland, New Zealand
Assoc Prof Ben Wooliscroft, University of Otago, Dunedin, New Zealand
Dr Enrique García Bengoechea, University of Limerick, Limerick, Ireland
Panelists:

Prof Jennifer Mindell, UCL (University College London) London, United Kingdom
Dr Enrique García Bengoechea, University of Limerick, Ireland
Mr Gareth Fairweather, Ministry of Transport, New Zealand
Working together, we can take new steps towards a healthier and more sustainable future.

Thank you for joining us on this journey!

We look forward to continuing to work together with you.

The Active Living and Environment Symposium (TALES) 2019 Organizing Committee